Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA 9241

[redacted]sis Method: 8260B, 8015(DRO), 8270D, METALS **Matrix:** ☑ Water ☐ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: S3-1, S2-1

SOIL: NONE

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Lisa Hennessy 11/8/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☐ No* ☑ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☐ No ☑ Yes* ☐ N/A Comment#:	1	
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
[redacted]Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	2	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NOTHING NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NOTHING NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	SVOC Method Blank - detection of diethyl phthalate at 2.2 µgl - samples associated with this batch are ND so no additional Qualification required.
2	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where noted and addressed in the LCS discussion; therefore, acceptable precision and accuracy are demonstrated by LCS QC.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No additional action required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8716

[redacted]ysis Method: 8260B **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: A10-4, T6-1, T7-2, T5-3, A8-1, SK-12S-hydra-2, SK-1S-hydra-2, SK-12S-hydra-6, SK-12S-hydra-4 SK-1S-hydra-4, SK-1S-hydra-6, SK-1S-hydra-8, SK-1S-hydra-10, SK-2S-hydra-2, SK-2S-hydra-4, SK-2S-hydra-6, SK-2S-hydra-10, SK-2S-hydra-8 SOIL: A10-4-5, A10-4-2, A10-4-10, A8-1-15, A8-1-0.5, A8-1-WT, A8-1-0.5, A8-1-5, T7-2-6, A8-1-10, A10-4-0.5, A10-4-INT, A10-4-15

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kate Fuller 11-1-13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
[redacted](Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☐ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☐ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☐ OK ☑ No* Comment#:	4	
Sample Evaluation	All hits within cal. Range	☐ OK ☑ No* Comment#:	5	☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):
NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Samples were collected in the field for future analysis if required and held at the lab. Analysis of any held samples are reported separately.
2	LCS recoveries were above the limits for dichlorodifluoromethane, Acetone, and 2-Hexanone Associated samples were ND. No additional action required. LCS recoveries were below the acceptance limits for 2-chloroethyl vinyl ether Data for this compound is qualified with an "R". See Data Qualification table below.
3	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
4	4-Bromoflurobenzene exceeds control limits for A8-1-0.5. Acrolein was reported as ND, therefore, no further action is required.
5	TCE was above calibration range and is lab flagged with an "E" for SK-1S-Hydra-10. No further action is required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
T7-2	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.
SK-2S-Hydra-8	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8757

Analysis Method: 8260B, metals **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: SK-1S-VER2, SK-1S-VER6, SK-1S-VER4, SK-1S-VER8

SOIL: A10-2-17, A10-1-2, A10-1-5

A10-1-INT, A10-1-10, A10-1-15, A10-2-10, A10-2-15, A10-2-5, A10-2-INT, A10-2-5, A10-2-0.5, A10-1-0.5

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** EQ, TB

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kfuller 11/4/13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☐ OK ☑ No* Comment#:	2	☑ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☑ Yes* ☐ N/A Comment#:	3	
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☐ OK ☑ No* Comment#:	5	☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	6	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

DUE TO PUMP ISSUES, PARAMETERS WERE NOT TAKEN PRIOR TO SAMPLING: SK-1S-VER6, SK-1S-VER2, SK-1S-VER4

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
2	Samples not preserved to pH<2 for: SK-1S-VER4 - qualified below
3	Detections in EQ for: Chloroform (J-value), Dichlorodifluoromethane (J-value), Toluene (J-value)
4	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
5	Samples out of calibration range: A10-2-17 (1,1,1-TCA) - lab qualified as E
6	Some metals required dilutions due to matrix interference. Details are provided in case narrative. All diluted samples have elevated reporting limits to reflect the dilution. No additional action required. Some VOCs required dilutions due to matrix interference. Details are provided in case narrative. All diluted samples have elevated reporting limits to reflect the dilution. No additional action required.
1	Samples were collected in the field for future analysis if required and held at the lab. Analysis of any held samples are reported separately.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
SK-1S-VER4	All Detected VOCs	J	Sample not properly preserved
SK-1S-VER4	Non-Detected VOCs	UJ	Sample not properly preserved

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8757R

Analysis Method: 8260B - VOLATILES **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: A10-1-10, A10-1-15

AQUEOUS: NONE

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** NONE

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/1/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:	2	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*	3	☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:		
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO INTEGRITY ISSUED NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Sample delivery group is only a partial set of FA8757.
	Samples were collected in the field for future analysis if required and held at the lab.
	This report contains analysis of some of the held samples and is reported separately.
2	Trip blank was associated with the parent sample delivery group FA 8757 and is validated under that group.
3	MS/MSD failures were present. All were evaluated.
	The laboratory case narrative provides detailed explanations of the compounds failing.
	Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No qualification required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8770

Analysis Method: 8260B **Matrix:** ☑ Water ☐ Soil ☐ Other

Sample Locations in Batch: SK-2S-VER-6, SK-2S-VER-8, SK-2S-VER-10
SK-2S-VER-2, SK-2S-VER-4, SK-12S-VER-2, SK-12S-VER-4, SK-12S-VER-6, T4-1, T5-1

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TB

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kfuller 11/1/13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☐ No* ☑ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☐ OK ☑ No* Comment#:	1	☑ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☐ No ☑ Yes* ☐ N/A Comment#:	2	
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☐ OK ☑ No* Comment#:	5	☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	6	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):
NO ISSUES NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	SK-2S-VER-2 had headspace, results are estimated - qualified below
2	Method blank detection for: 1,2,3-TCB (J-value, below RL): SK-2S-VER-2, SK-2S-VER-4
3	LCS below limits for: 2-Chloroethyl vinyl ether (SK-2S-VER-2, SK-2S-VER-4, SK-12S-VER-2, SK-12S-VER-4, SK-12S-VER-6, T4-1, T5-1) - qualified below LCS recoveries were above the limits for dichlorodifluoromethane, Acetone, and 2-Hexanone associated samples were ND so no additional action required.
4	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
5	Calibration range exceeded by: SK-12S-VER-4 (PCE) - lab qualified as E
6	Some VOCs required dilutions due to matrix interference. Details are provided in case narrative. All diluted samples have elevated reporting limits to reflect the dilution. No additional action required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
SK-2S-VER-2	2-Chloroethyl vinyl ether	R	LCS recovery low on ND result
SK-2S-VER-4	2-Chloroethyl vinyl ether	R	LCS recovery low on ND result
SK-12S-VER-2	2-Chloroethyl vinyl ether	R	LCS recovery low on ND result
SK-12S-VER-4	2-Chloroethyl vinyl ether	R	LCS recovery low on ND result
SK-12S-VER-6	2-Chloroethyl vinyl ether	R	LCS recovery low on ND result
T4-1, T5-1	2-Chloroethyl vinyl ether	R	LCS recovery low on ND result
SK-2S-VER-2	Detected VOCS	J	Headspace in sample
	Non- Detected VOCS	UJ	Headspace in sample

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8791

ysis Method: 8260B, 8015 (DRO), Metals, TOC **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: T3-1, T4-2

SOIL: S11-1-0.5, S11-1-2, S11-1-5, S11-1-10, S11-1-15, S11-1-WT

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kate Fuller 11-4-13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☑ No* ☐ N/A	1	☑ Flags Applied
Containers and Preservations	Containers and perservation compliant	☐ OK ☑ No* Comment#:	2	☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☐ OK ☑ No* Comment#:	5	
Sample Evaluation	All hits within cal. Range	☐ OK ☑ No* Comment#:	6	☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	7	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Samples were received within recommended hold times but not processed timely by the laboratory and inadvertently missed being analyzed within the method required time. See Data Qualification Table below.
2	Terracores were not available in the field. The samples were collected in jars and sent to the laboratory where they were transferred to vials upon receipt and within the recommended time for preservation. No additional action required.
3	LCS recoveries were above the limits for dichlorodifluoromethane, Acetone, and 2-Hexanone Associated samples were ND. No additional action required. LCS recoveries were below the acceptance limits for 2-chloroethyl vinyl ether Data for this compound is qualified with an "R". See Data Qualification table below.
4	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
5	4-Bromoflurobenzene exceeds control limits for S11-1-5 on run 3. The associated compound, Acrolein was ND. No further action is required.
6	TCE was above calibration range and is lab flagged with an "E" for S11-1-2. No further action is required.
7	Sample dilution were required for VOC and metals analysis. Where diluted, the laboratory has provided elevated reporting limits and flags to denote the dilution. No additional qualification is required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
T3-1	2-chlorovinylethyl ether	R	Low recovery of compound in the laboratory control spike.
S11-1-0.5	Detected VOCs Non-detected VOCs w	j UJ	Analyzed outside hold time.
S11-1-2			Analyzed outside hold time.
S11-1-5			Analyzed outside hold time.
S11-1-10			Analyzed outside hold time.
S11-1-15			Analyzed outside hold time.
S11-1-INT			Analyzed outside hold time.

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA 8792

Analysis Method: SW846 8260B, METALS **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: T7-1, SEBJ-1, A10-5, SEBJ-3, SEBJ-1, SEBJ-3, A10-3

SOIL: SEBJ-1-INT, SEBJ-1-15, SEBJ-1-10, SEBJ-1-5, SEBJ-1-0.5, SEBJ-1-2, SEBJ-1-15, SEBJ-2-0.5, A10-2-2, A10-5-5, SEBJ-2-2, A10-3-2, A10-3-5, A10-5-10, A10-5-15, A10-5-0.5, A10-5-INT, A10-3-INT, A10-3-15, A10-3-10

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANKS (TB-9, TB-19, TB-10)

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kate Fuller 11/4/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☐ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☑ No* ☐ N/A Comment#:	2	☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☐ OK ☑ No* Comment#:	3	☑ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	4	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	5	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☐ OK ☑ No* Comment#:	6	
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	7	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary TB-10 WAS SUBMITTED BUT NOT LOGGED IN AND INADVERTENTLY NOT ANALYZED.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

NO PURGE PARAMETERS FOR SAMPLES T7-1 AND SEBJ-1 DUE TO TROUBLE WITH PUMP. SAMPLE COLLECTED WITH TUBE AND CHECK VALVE. LEAKING CELL ON: SEBJ-3.

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
2	Sample SEBJ-1 was not preserved to pH<2 and contained significant headspace:Data is qualified.
	See Data Qualification Table below.
3	Some soil samples were received out of hold. These samples were not analyzed or reported.
	The locations were resampled.
4	LCS above limits for Dichlorodifluoromethane, Acetone -
	associated samples were ND so no additional action required.
	LCS below limits for 2-chloroethyl vinyl ether - qualify data - see Data Qualification Table below.
5	MS/MSD failures were present. All were evaluated.
	The laboratory case narrative provides detailed explanations of the compounds failing.
	Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision
	and accuracy are demonstrated by LCS QC.
6	Surrogate recovery is high for batch VY492, all associated results are ND, with the exception of 1,1,1-TCE,
	whch the lab has already qualified with a "J". No additional action required.
7	Some metals required dilutions due to matrix interference. Details are provided in
	case narrative. All diluted samples have elevated reporting limits to reflect the dilution.
	No additional action required.
1	Samples were collected in the field for future analysis if required and held at the lab.
	Analysis of any held samples are reported separately.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
SEBJ-1	Detected VOCs	J	Not preserved, headspace
	Non-Detected VOCs	UJ	Not preserved, headspace
SEBJ-1	2-chlorovinylethyl ether	R	Low LCS recovery

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: 8792R

ysis Method: 8260B **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: A10-5-10 A10-3-10

AQUEOUS: NONE

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** NONE-ASSOCIATED TRIP BLANKS VALIDATED WITH FA8792

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/1/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:	2	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NONE NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

NONE NOTED

Field Duplicate Analysis: NOT APPLICABLE

QC Item	Comments
1	This sample delivery group contains only VOC analysis for 2 samples associated with FA 8792. These samples were collected in the field for future analysis and held at the lab. They were requested to be analyzed later and a change order to the lab submitted.
2	Two trip blanks were associated with the parent sample delivery group FA 8792 and are validated under that group
3	MS/MSD failures for the following compounds: N-Butylbenzene - recovery low cis-1,3-dichloropropene - recovery low Methyltertbutyl Ether - recovery low Naphthalene - recovery low 1,2-Dibromo-3-chloropropane - RPD exceeds limit The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No qualification required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8798

[redacted]ysis Method: 8260B - VOLATILES **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: DUP-106, DUP-102, SK-1S, EQ-2, S18-3, T8-4, DUP-104, S17-2

SOIL: S18-3-5, S17-2-INT, SEBJ-2-10, SEBJ-2-INT, S18-3-INT, S18-3-15, S18-3-10, S17-2-10, S18-3-0.5, S18-3-2

Soil Split Samples: DUP-105 - SPLIT WITH SAMPLE S18-3-5

Quality Control Samples Associated With Batch **Field:** DUP-106, DUP-102, EQ-2, DUP-104, SPLIT S18-3-5

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/4/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☑ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:	1	
	Equipment Blank	☐ No ☑ Yes* ☐ N/A Comment#:	2	
[redacted](Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:	5	☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	6	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☑ OK ☐ No* ☐ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary TRIP BLANK PROVIDED; HOWEVER NOT MARKED ON CHAIN SO LABORATORY DIDN'T ANALYZE IT.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

FLOW THROUGH FLOW-THRU-CELL WAS INSUFFICIENT TO COLLECT FIELD PARAMETER SAMPLE WAS COLLECTED USING CHECK-VALUE TUBE ASSEMBLY FOR S18-3

Field Duplicate Analyis: NOT APPLICABLE - RPD CALCULATIONS ARE NOT PERFORMED ON SOIL SPLIT SAMPLES

DUP-106 = T8-4 = MAX RPD = 5% DUP-104 = S17-2 MAX RPD= 25% DUP-102 = SEBJ-2 > SEBJ-2 IS FROM FA8800 MAX RPD = 10%

[redacted] FIELD DUPLICATE PRECISION IS EVALUATED AGAINST A MAXIMUM ALLOWABLE RPD OF 40%. PRECISION OF THIS ANALYSIS IS ACCEPTABLE.

QC Item	Comments
2	EQ-2 is a field equipment blank. Compounds were detected in the blank at low concentrations below the reporting limit and are qualified with the "J" flag.
3	5 groups of LC spikes were included in this batch. All met QC requirements except for the following: 2-Chloroethyl vinyl ether - recovery low, qualified in table below Acetone - recovery high (affects samples: S18-3-15, S18-3-10, S17-2-10, S18-3-2) Sample results were ND therefore, no additional action is required.
4	6 MS/MSD's are associated with this batch MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
5	Sample result for T8-4 for compound 1.1,1-TCA is out of range and qualified by lab. No additional action needed. Sample result for S17-2 for compound PCE is out of range and qualified by lab. No additional action needed. Sample result for DUP-104 for compound PCE is out of range and qualified by lab. No additional action needed.
6	1,1, 1-TCA was diluted by a factor of 2 in sample T8-4. Result is flagged by laboratory-no additional action required.
1	Trip blank not on COC and not analyzed.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
DUP-102	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND
EQ-2	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND
S18-3	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND
T8-4	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND
DUP-104	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND
S17-2	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND
DUP-106	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND
SK-1S	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8799

Analysis Method: 8260B, 8015C **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: S11-3, S11-2

SOIL: S11-2-0.5, S11-2-2, S11-2-10, S11-2-15

S11-3-0.5, S11-2-5, S11-2-WT, S11-3-WT

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TB

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kfuller 11/4/13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☐ No ☑ Yes* ☐ N/A Comment#:	1	
	Trip Blank	☐ No ☑ Yes* ☐ N/A Comment#:	2	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☐ OK ☑ No* Comment#:	5	
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	6	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

NO ISSUES NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Method blank detection of: Methylene chloride (S11-2-0.5, S11-2-2, S11-2-10, S11-2-5)
2	Trip blank detection of: Toluene (J-value, below RL)
	Trip blank detection of Methylene Chloride (J-value, below RL)
3	LCS below limits for: 2-Chloroethyl vinyl ether (S11-3, S11-2) - qualified below
	LCS recoveries were above the limits for dichlorodifluoromethane
4	MS/MSD failures were present. All were evaluated.
	The laboratory case narrative provides detailed explanations of the compounds failing.
	Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision
	and accuracy are demonstrated by LCS QC.
5	Recovery data outside of QC reviewed; no additional action required.
6	Sample dilutions up to 10

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
S11-3	2-Chloroethyl vinyl ether	R	LCS low on ND result
S11-2	2-Chloroethyl vinyl ether	R	LCS low on ND result

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8800

Analysis Method: 8260B-VOLATILES **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: S17-2-15, SEBJ-2-INS, SEBJ-2-15, S17-2-5, S17-2-0.5, S17-2-2

AQUEOUS: SEBJ -2, T8-3

Split Samples DUP-101 (SEBJ-2-15), DUP-103 (S17-2-5)

Quality Control Samples Associated With Batch **Field:** DUP-107 (T8-3) AQUEOUS

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/1/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:	1	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☑ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary SOIL TRIP BLANK NOTED ON CHAIN BUT NOT RECEIVED, COOLER TEMP WITHIN REQUIREMENTS, ALL SAMPLES INTACT.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

T8-3 NOT ENOUGH WATER RECHARGE TO PROVIDE ADEQUATE FLOW THROUGH FLOW-THRU-CELL - RETRIEVED SAMPLE VOLUME FOR T8-3 USING TUBE AND CHECK VALVE.

Field Duplicate Analyis: DUP-107 = T8-3 = MAX RPD = 36%

FIELD DUPLICATE PRECISION IS EVALUATED AGAINST A MAXIMUM ALLOWABLE RPD OF 40%.

PRECISION OF THIS ANALYSIS IS ACCEPTABLE.

QC Item	Comments
1	Trip blank on chain but not received or analyzed.
2	3 LCS/LCSD summaries provided. There were low recoveries of 2-chloroethyl vinyl ether. Data for these compounds are qualified with an "R". See Data Qualification table below.
3	3 MS/MSD's were provided. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
SEBJ-2	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND
DUP-107	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND
T8-3	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8801

Analysis Method: VOC'S, METALS, DRO, GEN CHEM **Matrix:** ☑ Water ☐ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: S11-1, TB - 8

SOIL: None

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/4/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☐ OK ☑ No* ☐ N/A Comment#:	1	☐ Flags Applied
	Soil	☐ OK ☐ No* ☑ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☑ Yes* ☐ N/A Comment#:	2	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	5	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☐ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary SAMPLES WERE PRESERVED CORRECTLY AND NO INTEGRITY ISSUES NOTED.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analysis: NOT APPLICABLE

QC Item	Comments
1	Wet chemistry analysis for pH was analyzed out of hold - No action required as this parameter was collected in the field at the time of sample collection.
2	Toluene was detected in the trip blank at low concentrations - Toluene was not detected in sample S11-1; therefore, no additional action required
3	LCS Spike for 2-Chloroethyl vinyl ether was recovered low Data for these compounds are qualified with an "R". See Data Qualification table below.
4	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
5	Dilutions were required for the inorganic chemistry analyses - reporting limits were elevated to reflect the dilutions are reported - no additional action required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
S11-1	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND
TB-8	2-Chloroethyl vinyl ether	R	LCS recovery out of QC limits and sample result is ND

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8825

[redacted]ysis Method: TO-15 **Matrix:** ☐ Water ☐ Soil ☑ Other Air

Sample Locations in Batch: AS-1 - Basement
AS-2-Main Floor
AIR-Background

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** NONE
Lab: METHOD BLANKS, LAB SPIKES

Reviewed by & Date: Kate Fuller 12/2/13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Air	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☐ No* ☑ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:	1	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
[redacted](Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☐ OK ☐ No* ☑ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☐ No* Comment#:		
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☑ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	2	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Trip blank not required for air samples
2	Sample dilutions up to 1.65X required. Reporting limits are modified to reflect dilutions. No additional action required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No additional action required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8832

Analysis Method: 8260B **Matrix:** ☑ Water ☐ Soil ☐ Other

Sample Locations in Batch: SK-12S, T8-0, T8-5, T8-2, T8-1, T4-3, SK-2S

Split Samples

Quality Control Samples Associated With Batch **Field:** DUP-1001 (T8-5), DUP-1002 (T8-2), DUP-1000 (T8-0), DUP-1003 (T8-1)

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LHennessy 11/4/13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☐ No* ☑ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☐ No ☑ Yes* ☐ N/A Comment#:	1	
	Trip Blank	☐ No ☑ Yes* ☐ N/A Comment#:	3	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☑ No* ☐ N/A See Analysis Below		☑ Flags Applied

Sample Receipt Summary No issues noted.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

No issues noted.

Field Duplicate Analyis: DUP-1001 = T8-5 = RPD ANALYSIS - MAX = 23% WHICH IS LESS THAN 40%

DUP-1002 = T8-2 = RPD ANALYSIS - MAX = 12% WHICH IS LESS THAN 40%

DUP-1000 = T8-0 = RPD ANALYSIS - MAX = 57% WHICH IS GREATER THAN 40%

DUP-1003 = T8-1 = RPD ANALYSIS - MAX = 17% WHICH IS LESS THAN 40%

QC Item	Comments
1	Method blank detection of: 1,2,3-Trichlorobenzene (>MDl, <RL) for SK-12S, T8-0, T8-5, DUP-1001, T8-2, DUP-1002, DUP-1000, DUP-1003, T8-1. No detections in samples, no action required.
2	LCS recovery low for: 2-Chloroethyl vinyl ether - qualified below
3	Trip blank detections: Toluene and Chlorobenzene (>MDL, < RL) - lab qualified associated samples with a J
4	Only MS completed, not MSD

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
T4-3	2-Chloroethyl vinyl ether	R	LCS recovery low
SK-2S	2-Chloroethyl vinyl ether	R	LCS recovery low
TB-20	2-Chloroethyl vinyl ether	R	LCS recovery low
T8-0	N-Butylbenzene, sec-Butylbenzene, Isopropylbenzene, 4-Methyl-2-	J	Poor duplicate precision
DUP-1000		J	Poor duplicate precision

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8833

Analysis Method: 8260B, TOXAPHENE, METALS, SVOC, TOC **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: PW-1, PW-2, PW-3, PW-4, TRIP BLANK

SOIL: CC-1, CC-2, CC-3, CC-4

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** NONE

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/5/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☑ Yes* ☐ N/A Comment#:	1	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☐ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☐ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	4	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NONE NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

SAMPLES WERE FAIRLY TURBID

Field Duplicate Analysis: NOT APPLICABLE

QC Item	Comments
1	Toluene was reported in the trip blank at a low concentration above MDL but below RL. It is qualified with a "J."
	Toluene was not detected in any other samples. No additional qualification required.
2	2-Chloroethyl vinyl ether had a low recovery for the Lab Control Spike. Data qualifications apply.
	See Data Qualifications Table below.
3	MS/MSD Failures were noted for the following analyses.
	8260B, 8270D, 8081B abd TOC:
	The laboratory case narrative provides detailed explanations of the compounds failing.
	Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision
	and accuracy are demonstrated by LCS QC.
4	Metals analysis for CC-3 required 2x dilution, reporting limits reflect the dilution.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
PW-1	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.
PW-2	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.
PW-3	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.
PW-4	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.
Trip Blank	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8881

Analysis Method: 8260B **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: T1-1, S18-2, S17-1a

S18-6-15, S18-6-10, S18-2-INT, S18-6-5, S18-2-15, S18-2-2, S18-2-5, S18-6-2, S18-2-10

Split Samples DUP-112 (S18-2-5)

Quality Control Samples Associated With Batch **Field:** DUP-113 (S18-2), TB

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kfuller 11/1/13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	1	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	2	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☑ OK ☐ No* ☐ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary No issues noted.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

Insufficient water flow or pump trouble for parameter collection (S17-1a, T1-1); flow-through cell leaked (S18-2)

Field Duplicate Analyis: DUP-112 = S18-2-5 = RPD ANALYSIS - MAX = 2% WHICH IS LESS THAN 40%

DUP-113 = S18-2 = RPD ANALYSIS - MAX = 30% WHICH IS LESS THAN 40%

QC Item	Comments
1	LCS below limits for 2-Chloroethyl vinyl ether (T1-1, S18-2, S17-1a, DUP-113): qualified below
2	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
T1-1	2-Chloroethyl vinyl ether	R	LCS recovery low on ND result
S18-2	2-Chloroethyl vinyl ether	R	LCS recovery low on ND result
S17-1a	2-Chloroethyl vinyl ether	R	LCS recovery low on ND result
DUP-113	2-Chloroethyl vinyl ether	R	LCS recovery low on ND result

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA 8882

Analysis Method: 8260B **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: S18-1-2, S18-1-5, S18-1-10, S18-1-15, S18-1-INT, S17-1-2, S17-1-5, S17-1-10, S17-1-15, S17-1-INT

AQUEOUS: S18-1, S17-1, DUP-109, DUP-111, TRIP BLANK

Split Samples DUP-108 - SPLIT WITH S18-1-15

DUP-110 - SPLIT WITH S17-1-10

Quality Control Samples Associated With Batch **Field:** BLANK

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/5/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☑ No* ☐ N/A	1	☑ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☐ OK ☑ No* Comment#:	4	☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	5	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☑ No* ☐ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NONE NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: DUP-109=S18-1 MAX RPD=18% DUP111=S17-1 MAX RPD=8%

-RPD<40%; THEREFORE ACCEPTABLE AND NO ADDITIONAL ACTION REQUIRED

QC Item	Comments
2	LCS failures as noted:
	2-chloroethyl vinyl ether - recovery low - flag associated data - see below
	-spike QC for metals is acceptable
3	MS/MSD failures as noted:
	MS/MSD Soil had low recovery for multiple compounds.
	MS/MSD Aqueous: Acetone - recovery low, Bromoform - recovery low, 2-chloroethyl vinyl ether,
	1,1-DCE - recovery high, 2-Hexane, Styrene
	All aqueous samples except the trip blank had low level detections already qualified with a "J" No action required
	The laboratory case narrative provides detailed explanations of the compounds failing.
	Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision
	and accuracy are demonstrated by LCS QC.
4	PCE was E flagged by lab as out of calibration range in sample S18-1, S17-1, DUP-109, DUP-111. Lab has flagged.
	No additional action required.
5	For samples: S18-1-5, S18-1-10, S18-1-15, S18-1-INT, S17-1-2, S17-1-5 - metal required dilution - reporting limits
	reflect action. No additional action required.
1	Samples were received within recommended hold times but not processed timely by the laboratory
	and inadvertently missed being analyzed within the method required time. See Data Qualification Table below.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
S18-1	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.
S17-1	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.
DUP-109	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.
DUP-111	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.
TB	2-chloroethyl vinyl ether	R	Low recovery of compound in the laboratory control spike.
Dup-108	Detected VOCs	J	Exceeded hold time
DUP-110	Non-detected VOCs	UJ	

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8885

Analysis Method: 8260B, 8270D, 8015C, metals, TOC **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: S20-1, S10-1, S20-1-10, S20-1-WT, S17-1a-CLAY
S10-1-0.5, S10-1-2, S10-1-10, S10-1-15, S10-1-WT
S10-1-5, S20-1-2, S20-1-5

Split Samples DUP-1007 (S10-1-WT)

Quality Control Samples Associated With Batch **Field:** DUP-1006 (S10-1), TB
Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kfuller 11/6/13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☑ Yes* ☐ N/A Comment#:	2	
	Trip Blank	☐ No ☑ Yes* ☐ N/A Comment#:	3	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	4	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	5	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	6	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☑ OK ☐ No* ☐ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary No issues noted.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):
No issues noted.

Field Duplicate Analyis: SPLIT DUP-1007 = S10-1-WT = RPD ANALYSIS - MAX = 70% WHICH IS MORE THAN 40%
DUP-1006 = S10-1 = RPD ANALYSIS - MAX = 8% WHICH IS LESS THAN 40%

QC Item	Comments
2	Method Blank detection of Methylene chloride (8.2J) for S10-1-0.5, S10-1-2, S10-1-10, S10-1-15, S10-1-WT, TB
3	Trip Blank detection of Methylene Chloride (8.5J, below RL)
4	LCS recoveries were above the limits for acetone
5	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
6	Sample dilutions up to 10
1	Samples were collected in the field for future analysis if required and held at the lab. Analysis of any held samples are reported separately.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No additional action required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8886

[redacted]ysis Method: 8260B, 8015 (DRO), Metals, TOC **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: NBJ-1, T3-2

SOIL: NBJ-1-0.5, NBJ-1-2, NBJ-1-5, NBJ-1-10, NBJ-1-15, NBJ-1-WT, S14-5-0.5, S14-5-2, S14-5-5

Split Samples DUP-1009 split with NBJ-1-15

Quality Control Samples Associated With Batch **Field:** DUP-1008, DUP-1010

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Lisa Hennessy 11-5-13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☑ No* ☐ N/A	2	☑ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
[redacted](Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☑ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	5	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☐ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: DUP-1008=NBJ-1 Max RPD=8% DUP-1010=T3-2 max RPD=11%

DUP-1009/NBJ-1-15 Split - All ND so RPD not calculated.

[redacted]D DUPLICATE PRECISION IS EVALUATED AGAINST A MAXIMUM ALLOWABLE RPD OF 40%. PRECISION OF THIS ANALYSIS IS ACCEPTABLE.

QC Item	Comments
3	LCS recoveries were above the limits for Acetone.
	Associated samples were ND. No additional action required.
4	MS/MSD failures were present. All were evaluated.
	The laboratory case narrative provides detailed explanations of the compounds failing.
	Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision
	and accuracy are demonstrated by LCS QC.
5	Sample dilution were required for VOC and metals analysis. Where diluted, the laboratory has provided
	elevated reporting limits and flags to denote the dilution. No additional qualification is required.
2	Samples were received within recommended hold times but not processed timely by the laboratory
	and inadvertently missed being analyzed within the method required time. See Data Qualification Table below.
1	Samples were collected in the field for future analysis if required and held at the lab.
	Analysis of any held samples are reported separately.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
NBJ-1-0.5	Detected VOCs Non-detected VOCs	J UJ	Analyzed outside hold time.
NBJ-1-2			
NBJ-1-5			
NBJ-1-10			
NBJ-1-15			
NBJ-1-WT			

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA 8887

Analysis Method: VOCs, SVOCs, METALS **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: S14-4

SOIL: S14-4-15, S14-4-2, S14-4-10, S14-4-WT, S14-4-0.5, S14-4-5, TB-13

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/6/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☐ OK ☑ No* Comment#:	4	
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	5	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NOTHING NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NOTHING NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Samples were collected in the field for future analysis if required and held at the lab.
	Analysis of any held samples are reported separately.
2	LCS is acceptable with the following exception:
	Acetone was recovered high, affected sample S14-4 is ND for Acetone. No additional qualification required.
	Dichlorodifluoromethane - LCS recovery is high. Affected sample S14-4 & is reported as ND for this compound.
	No additional qualification required.
	Metals - several samples had metal concentrations above the spike and recovery was outside QC limits. All data is
	flagged by lab. -No additional qualification required.
3	MS/MSD failures were present. All were evaluated.
	The laboratory case narrative provides detailed explanations of the compounds failing.
	Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision
	and accuracy are demonstrated by LCS QC.
	38 failures were observed in the MS/MSD for sample S14-4-5 - the matrix was a non-CH sample.
4	Surrogate recoveries were outside limits for the confirmation run on sample S14-4-0.5, Sample was quanitified
	using runs with acceptable recoveries. No additional qualification required.
5	Dilutions were required for the following samples:
	Metals - S14-4-2 - reporting limit has been modified and is acceptable
	Pb - S14-4-0.5 - 5x dilution - reporting limit has been modified and is acceptable
	No additional action required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Chromium had high RPD, Pb had high RPD. (Acceptable due to low sample concentrations. No additional action required)

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No additional Action Required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8909

Analysis Method: 8260B, 8270D, 8081B, metals, 9060A **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: PW-5, PW-6

CC-5, CC-6

Split Samples

Quality Control Samples Associated With Batch **Field:**

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kfuller 11/4/13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:	1	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	4	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary No issues noted.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

No issues noted.

Field Duplicate Analyis: Not applicable

QC Item	Comments
2	LCS below limits for: 4-Nitrophenol, 4-Bromophenyl phenyl ether, 3,3'-Dichlorobenzidine (CC-5) - qualified below
	LCS recoveries were above the limits for Acetone.
	Associated samples were ND. No additional action required.
3	MS/MSD failures were present. All were evaluated.
	The laboratory case narrative provides detailed explanations of the compounds failing.
	Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision
	and accuracy are demonstrated by LCS QC.
4	Sample dilutions up to 5
1	No trip blanks provided or analyzed.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
CC-5	4-Nitrophenol,	R	LCS below limits
CC-5	4-Bromophenyl phenyl ether,	R	LCS below limits
CC-5	3,3'-Dichlorobenzidine	R	LCS below limits

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA 8921

Analysis Method: 8260B; METALS, 8270D **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: S18-5-2, S24-3-5, S24-3-2, S24-2-10, S24-3-10, S24-2-15
S24-2-INT, S18-5-5, S14-1-2, S13-3-10, S13-3-10, S13-3-15, S18-5-INT, S24-2-5
AQUEOUS: S18-5, S24-2, S24-3

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK
Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Lisa Hennessy 11/8/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☑ No* ☐ N/A	1	☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☑ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary HOLD TIMES MISSED FOR VOC SAMPLES ASSOCIATED WITH S18 AND S24 SOILS. DISCARD VOC DATA. NO OTHER ISSUES

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Soil samples S24-2-10, S24-2-15, S18-5-5, S24-2-INT, S18-5-INT, and S24-2-5 are out of hould
	Data was rejected and not reported. Location resampled for VOCS and validated under 9049 & 9055
2	LCS data for soil samples are acceptable.
	LCS data for aqueous samples has high recovery for Acetone.
	- All associated samples are N.D. so no additional action required.
3	MS/MSD recoveries/RPDS outside QC limits as follows:
	For Samples S14-1-2, S13-3-10, S13-3-15
	VOCS: Low recovery: 1,1-DCE & hexachlorobutadiene, 1,2,3-trichlorobenzene, 1,2,4-trichlorobenzene
	For Samples S18-5, S24-3, and S24-2
	No recovery for 2-chloroethyl vinyl ether
	Low recovery for trans-1,3-dichloropropene, Styrene, 1,3,5-trimethylbenzene
	-All laboratory spike data is acceptable so no additional action required
	SVOC: Sample S14-1-2 - low recovery on RPD exceedences for 4,6-dinitro-o-cresol, 2-methylphenol,
	bis(2-chloroethyl)ether, hexachlorocyclopentadiene
	Metals: most metals did not show good precision & accuracy - all LCS is OK; therefore, no additional action
	required

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No additional action required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA 8922

Analysis Method: 8260B-VOLATILES, 8270D-SEMIVOLATILES, **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: S13-3-INT, S24-3-INT, S13-3-0.5, S13-3-5, S13-3-2, S13-3-0.5, S13-3-2, S13-3-0.5, S13-3-2, S14-1-0.5

AQUEOUS: S13-3

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK TB-19

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: KATE FULLER 11/6/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☑ No* ☐ N/A Comment#:	1	☑ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	The laboratory did not notify Cameron-Cole that Sample S24-3-INT was received out of hold. This sample was analyzed. Results will be qualified.
2	LCS above limit for: Acetone - associated samples were non-detect; therefore, no additional action required.
3	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
4	Some metals required dilutions due to matrix interference. Details are provided in case narrative. All diluted samples have elevated reporting limits to reflect the dilution. No additional action required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
S24-3-INT	Detected VOCs	J	Samples were analyzed outside of hold times.
	Non-detected VOCs	UJ	Samples were analyzed outside of hold times.

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8922R

Analysis Method: 8270D-SEM-IVOLATILES **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: S13-3-5, S14-1-5

AQUEOUS: NONE

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** NONE

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Lisa Hennessy 11/7/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:	2	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary SAMPLE ORIGINALLY HELD. A REQUEST TO RUN SAMPLE WITHIN HOLD TIME WAS SUBMITTED TO THE LAB.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NOTHING NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Samples were collected in the field for future analysis if required and held at the lab. The results for this report are for a subsequent analysisr equested on 11/4/2013 - holding times met.
3	MS/MSD failures were present in approximately 15% of the samples. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
2	Trip blank was associated with the parent sample delivery group FA 8922 and is validated under that group

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No additional action required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8923

Analysis Method: _____ **Matrix:** ☑ Water ☑ Soil ☐ Other _____

Sample Locations in Batch: SOIL: S1-1-0-0.5, S1-1-2, S1-1-5', S1-1-10', S1-1-15', S1-1-WT

AQUEOUS: S1-1, DUP-1012, S18-4, DUP-1011

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK, DUP-1012, DUP-1011

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Lisa Hennessy 11/7/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☑ No* ☐ N/A	2	☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	5	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☑ OK ☐ No* ☐ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary SAMPLES S18-4-2, S18-4-5, S18-4-10, S18-4-15, S18-4-WT, S18-4-20-25 WERE OUT OF HOLD FOR VOCS. VOCS WERE RESAMPLED AND VALIDATED UNDER FA9146

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: DUP-1012=S1-1 DUP-1011=S18-4

RPD ANALYSIS - MAX = 15% WHICH IS BELOW 40%

FIELD DUPLICATE PRECISION IS EVALUATED AGAINST A MAXIMUM ALLOWABLE RPD OF 40%.

PRECISION OF THIS ANALYSIS IS ACCEPTABLE.

QC Item	Comments
3	LCS data requires result qualifications as follows:
	VOC: Acetone had high recovery for QC associated with aqueous samples. All samples were reported as non-detect for
	acetone; thereofore, no additional action required
	SVOC: for sample S1-1 the following compounds had a low recovery:
	2-chlorophenol, 4-chloro-3-methyl phenol, 2,4-dichlorophenol, 4-Bromophenyl phenyl ehter, Benzyl alcohol
4	MS/MSD failures were present. All were evaluated.
	The laboratory case narrative provides detailed explanations of the compounds failing.
	Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision
	and accuracy are demonstrated by LCS QC.
	-No recovery for 2-chloroethyl vinyl ether - LCS OK so no additional action required.
5	Some metals required dilutions due to matrix interference. Details are provided in
	case narrative. All diluted samples have elevated reporting limits to reflect the dilution.
	No additional action required.
1	Samples were collected in the field for future analysis if required and held at the lab.
	Analysis of any held samples are reported separately.
2	Samples S18-4-0.5 through S18-4-INT were received out of hold. These samples were not reported or analyzed. The
	location was resampled. No additional action required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
S1-1	2-chlorophenol	R	Low recovery for lab spike
S1-1	4-chloro-3-methyl phenol	R	Low recovery for lab spike
S1-1	2,4-dichlorophenol	R	Low recovery for lab spike
S1-1	4-Bromophenyl phenyl ether	R	Low recovery for lab spike
S1-1	Benzyl alcohol	R	Low recovery for lab spike

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8925

[redacted]ysis Method: 8260B **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: NONE

SOIL: A12-5-2, A12-3-2, A12-3-10, A12-1-0.5, A12-1-5, A12-2-5, A12-3-5, A12-5-0.5

Split Samples DUP-120 split with A12-1-5

Quality Control Samples Associated With Batch **Field:** TRIP BLANK (TB-21)

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kate Fuller 11-7-13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☑ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
[redacted](Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		
	Acceptance criteria met	☑ OK ☐ No* Comment#:		☐ Flags Applied
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		
	Acceptance Limits:	☐ OK ☑ No* Comment#:	1	☐ Flags Applied
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		
	Recovery Limits:	☐ OK ☑ No* Comment#:	2	☐ Flags Applied
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		
	Sample Dilutions	☐ No ☑ Yes* Comment#:	3	☐ Flags Applied
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☑ OK ☐ No* ☐ N/A See Analysis Below	4	☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): SAMPLE A12-3-2 HAD HIGH OVM READINGS.

Field Duplicate Analyis: RPD CALCULATIONS BETWEEN PRIAMRY AND SPLIT SAMPLES RANGED FROM 21% TO 126%. REVIEW OF THE DATA INDICATES THAT THREE OF THE FOUR DETECTIONS WERE BELOW THE REPORTING LIMIT AND [redacted]LIFIED WITH A j AND THE OTHER WAS WITHIN 3 REPORTING LIMITS. RESULTS ARE ACCEPTABLE.

QC Item	Comments
1	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
2	Surrogate recoveries above the limits occurred; however, they were for internal standards only and There was a high recovery for 4-bromoflurobenzene in sample A12-5-0.5 but the confirmation run is ok. No further action is required.
3	Sample dilution were required for VOC analysis of A12-3-10. Where diluted, the laboratory has provided elevated reporting limits and flags to denote the dilution. No additional qualification is required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No additional action required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA 8925R

Analysis Method: 8260B **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: A12-3-15

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** NONE - TRIP BLANK REPORTED WITH REMAINDER OF BATCH

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/1/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:	2	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary SAMPLES RECEIVED WITHIN REQUIRED TEMPERATURES. AND PRESERVED. NO INTEGRITY ISSUES NOTED.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NO ISSUES NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	COC is for larger sample set. This sample was initially held for VOCs but later requested. All analyses were within hold times.
3	Some MS/MSD percent recoveries were outside QC limits. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
2	Trip blank was associated with the parent sample delivery group FA 8925 and is validated under that group

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No qualification required.

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8926

Analysis Method: 8260B, 8270D, metals **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: S25-1

S14-3-0.5, S14-3-2, S25-1-0.5, S25-1-2

Split Samples

Quality Control Samples Associated With Batch **Field:** TB

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kfuller 11/7/13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☑ No* ☐ N/A	2	☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	5	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary No issues noted.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

Very high OVM reading at S14-3-0.5

Field Duplicate Analyis: Not applicable

QC Item	Comments
3	LCS is below limit for: 4-Nitrophenol, 4-Bromophenyl phenyl ether, 3,3'-Dichlorobenzidine (S14-4-0.5, S25-1-0.5, S25-1-2), qualified below LCS recoveries were above the limits for Acetone. Associated samples were ND. No additional action required.
4	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
2	Re-extraction out of hold time for SVOCs; results significantly higher than original run, higher results reported (S14-3-0.5, S14-4-2, S25-1-0.5, S25-1-2). Data to be qualified.
5	Sample dilutions up to 4
1	Samples were collected in the field for future analysis if required and held at the lab. Analysis of any held samples are reported separately.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
S14-3-0.5	4-Nitrophenol,	R	Low LCS recovery
S14-3-0.5	4-Bromophenyl phenyl ether,	R	Low LCS recovery
S14-3-0.5	3,3'-Dichlorobenzidine	R	Low LCS recovery
S25-1-0.5	4-Nitrophenol,	R	Low LCS recovery
S25-1-0.5	4-Bromophenyl phenyl ether,	R	Low LCS recovery
S25-1-0.5	3,3'-Dichlorobenzidine	R	Low LCS recovery
S25-1-2	4-Nitrophenol,	R	Low LCS recovery
S25-1-2	4-Bromophenyl phenyl ether,	R	Low LCS recovery
S25-1-2	3,3'-Dichlorobenzidine	R	Low LCS recovery
S14-3-0.5	Detected SVOCS Non-detected SVOCs	J UJ	Reextracted and rerun out of hold time.
S14-3-2			
S25-1-0.5			
S25-1-2			

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8926R

Analysis Method: _____ **Matrix:** ☐ Water ☑ Soil ☐ Other _____

Sample Locations in Batch: SOIL: S14-3,5, S25-1-5

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** NONE, TRIP BLANK IS VALIDATED WITH FA8926

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/1/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☐ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:	2	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:	4	☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary 1 VIAL FOR S14-3-5' BROKEN. LAB WAS ABLE TO ANALYZE WITH REMAINING VIAL.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Samples were collected in the field for future analysis. Analysis of VOCs was requested on 10-24-13. Chain of custody covers samples in 8926 and 8926R. All requested analyses to be run for this batch are recorded in the laboratory change order.
3	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
2	Trip blank was associated with the parent sample delivery group FA 8926 and is validated under that group

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No Qualifiication required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8927

[redacted]lysis Method: 8260B, 8270D, 8015C, 8081B, 8151A, m **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: 9, DC-8-2, DC-11-2, DC-8-0.5, DC-9-2

DC-10-0.5, DC-11-0.5, DC-10-2, DC-9-0.5

AQUEOUS: DC-9

Split Samples

Quality Control Samples Associated With Batch **Field:** DUP-1016 (DC-9), TB

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kfuller 11/8/13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
[redacted](Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☐ OK ☑ No* Comment#:	4	
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	5	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☑ OK ☐ No* ☐ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary No issues noted.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

No issues noted.

Field Duplicate Analysis: DUP-1016 = DC-9 = RPD ANALYSIS - MAX = 8% WHICH IS LESS THAN 40%

QC Item	Comments
2	LCS recoveries were above the limits for Acetone, Dichlorodifluoromethane
	Associated samples were ND. No additional action required.
3	MS/MSD failures were present. All were evaluated.
	The laboratory case narrative provides detailed explanations of the compounds failing.
	Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision
	and accuracy are demonstrated by LCS QC.
5	Sample dilutions up to 50
4	The surrogate recovery of a pesticide was below 10% due to dilution. No additional action is required.
1	Samples were collected in the field for future analysis if required and held at the lab.
	Analysis of any held samples are reported separately.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No additional action required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA 8927R

[redacted]ysis Method: **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: DC-8-5 DC-9-5

AQUEOUS: NONE

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** NONE-ASSOCIATED TRIP BLANKS VALIDATED WITH 8927

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/4/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☑ No* ☐ N/A Comment#:	2	☑ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:	3	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
[redacted] (Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	4	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	5	
Surrogate Recovery Summary	Method surrogates used	☐ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☐ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☐ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☐ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary ALL SAMPLES RECEIVED WITH PROPER TEMPERATURE

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Samples in this batch were initially submitted as "hold" samples. A request to run the analyses was submitted to the lab on 10-24-13 and 10-30-13.
2	Sample DC-8-5 was analyzed within hold time but sample DC-9-5 was analyzed 7 days pass hold. The sample was properly preserved. Validation flags will be applied. See Data Qualification Table below
4	LCS recoveries were above the limits for Chloroethane Associated samples were ND. No additional action required.
5	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
3	Trip blank was associated with the parent sample delivery group FA 8927 and is validated under that group

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
DC-9-5	Detected VOCs	J	Samples were properly preserved; however the analysis was done outside technical hold times.
DC-9-5	Non-detected VOCs	UJ	

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8931

Analysis Method: 8260B **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: A12-1, A12-3

SOIL: A12-4-5, A12-1-10, A12-1-15, A12-4-2

A12-4-2, A12-4-0.5, A12-1-2, A12-1-INT, A12-3-19, A12-5-5

Split Samples

Quality Control Samples Associated With Batch **Field:** EQ, TB

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kfuller 11/1/13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☑ Yes* ☐ N/A Comment#:	1	
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary No issues noted.

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data):

No issues noted.

Field Duplicate Analyis: Not applicable

QC Item	Comments
1	EQ detections: Dibromoclormethane (J, below RL), Methylene chloride (J, below RL), Toluene (J, below RL)
2	LCS recoveries were above the limits for: Acetone, Dichlorodifluoromethane Associated samples were ND. No additional action required.
3	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No additional action required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA 8931R

Analysis Method: 8260B-VOLATILES **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: A12-4-5

AQUEOUS: NONE

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** PARENT BATCH HAS EQ & TB

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: LISA HENNESSY 11/4/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:	1	
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☐ OK ☑ No* ☐ N/A Comment#:	2	☑ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:	1	
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:	1	
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analysis: NOT APPLICABLE

QC Item	Comments
1	This sample was submited originally with batch 8931 & the VOC analysis was requested on 10/24/2013. The trip blank and EQ blank analysis are validated under 8931.
2	Sample was run 2 days outside of hold. Data should be qualified as stated below in the Data Qualification Table.
3	MS/MSD recoveries were outside QC limits. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
A12-4-5	Acetone	J	Analyzed beyond hold time

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8931X

[redacted]ysis Method: RADIUM 226 AND 228 **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: NONE

SOIL: A12-4-2, A12-1-10, A12-5-5, A12-4-5, A12-1-2, A12-1-15, A12-4-0.5, A12-1-INT

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** NONE

Lab: METHOD BLANKS, LAB SPIKES

Reviewed by & Date: Kate Fuller 12-2-13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
[redacted](Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☑ OK ☐ No* Comment#:		
Surrogate Recovery Summary	Method surrogates used	☐ OK ☐ No* ☑ Not provided		☐ Flags Applied
	Recovery Limits:	☐ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Samples were collected in the field for future analysis if required and held at the lab.
	Analysis of any held samples are reported separately.
2	LCS recoveries were below the acceptance limits for several Radium 226 and 228 analyses.
	Associated sample results are lab qualified with a "U" and identified as samples with a CalcVal<MDL.
	Data should be qualified as stated below in the Data Qualification Table

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
A12-4-2	Radium-226	U	Sample with a CalcVal<MDL
A12-4-2	Radium-228	U	Sample with a CalcVal<MDL
A12-1-2	Radium-228	U	Sample with a CalcVal<MDL
A12-1-INT	Radium-226	U	Sample with a CalcVal<MDL
A12-1-INT	Radium-228	U	Sample with a CalcVal<MDL
A12-5-5	Radium-226	U	Sample with a CalcVal<MDL
A12-5-5	Radium-228	U	Sample with a CalcVal<MDL
A12-1-15	Radium-226	U	Sample with a CalcVal<MDL
A12-1-15	Radium-228	U	Sample with a CalcVal<MDL

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA9240X

Analysis Method: RAD 226 AND 228 **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: NONE

SOIL: S22-1-0.5, A12-3-0.5

Split Samples NONE

Quality Control Samples Associated With Batch Field: NONE

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Kate Fuller 12-2-13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☑ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:	2	
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☑ OK ☐ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☐ OK ☐ No* ☑ Not provided		☐ Flags Applied
	Recovery Limits:	☐ OK ☐ No* Comment#:	5	
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:	6	☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:	7	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☑ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analysis: NOT APPLICABLE

QC Item	Comments
1	These two samples were subcontracted out by the lab for specialty analysis. All other compounds on chain of custody are evaluated and reported separately under 9240.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accurace of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No additional action required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA9189

Analysis Method: 8260B, METALS, TOC **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: T6-2-20, T6-2-CLAY, T6-2-15, T6-2-5, T6-2-ID, T6-2-INT, T6-2-2, TB-34

AQUEOUS: A12-1D-CLAYW, A12-1D-LOW

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Lisa Hennessy 11/7/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☐ No ☑ Yes* ☐ N/A Comment#:	2	
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☐ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☐ OK ☑ No* Comment#:	4	☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	5	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☐ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NOTHING NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NOTHING NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Geotech and Radium 226 samples are subcontracted out and are validated under FA9189X
2	All VOC Method blanks are ND.
3	Some VOCs required dilutions due to matrix interference. Details are provided in case narrative. All diluted samples have elevated reporting limits to reflect dilution. No additional qualifications required.
4	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where noted and addressed in the LCS discussion; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
5	Sample A12-1D-LOW had a dection of TCE above range. - Lab has provided a data qualifier of "E." No additional qualification required
6	Some metals required dilutions due to matrix interference. Details are provided in case narrative. All diluted samples have elevated reporting limits to reflect the dilution. No additional qualifications required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accurace of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	-	-	No additional action required

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA9022

Analysis Method: 8260B-VOCS **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: SOIL: T3-3-CLAY, T5-4-20, T5-4-CLAY, S11-3R-10, S11-3R-0.5, S11-3R-15, S11-3R-2, S11-3R-5, TB-28, A10-2-R-WT, A10-2-R-15, A10-2-6-10, A10-2-R-5, A10-2-R-0.5, BF-4, BG-3, BG-2, BG-1

AQUEOUS: EQ-6, TO-1, T1-2, T5-4, T3-3

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK, EQ BLANK

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD, SURROGATES

Reviewed by & Date: Lisa Hennessy 11/8/2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☑ OK ☐ No* Comment#:	1	
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☐ OK ☑ No* Comment#:	6	☑ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☑ Yes* ☐ N/A Comment#:	2	
LCS (Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	4	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☐ OK ☑ No* Comment#:	5	☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO SOLIDS JARS SENT FOR SAMPLES COLLECTED FROM A-10-2. SAMPLES WERE CALCULATED USING 100% SOLIDS AND NO ADDITIONAL ACTION REQUIRED. SEE QC COMMENT #1

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	8260B requires a jar of soil used to calculate the percent solids in the sample. Jars ere not sent for sample A-10-2; therefore, it was assumed that there 100% solids. This is acceptable - all other sample collected are in the upper 80 to lower 90% which will not affect the outcome of the analytical results.
2	Sample EQ-6 had three VOC compounds detected at low concentrations below reporting limit and greater than MDL. Associated results are qualified with a "J," indicating an estimted value. These include bromodichloromethane at 0.78J µg/l, chloroform at 0.44J µg/l, and dichlorodifluoromethane at 0.97J µg/l. - No additional action required.
3	LCS recoveries were above the limits for chloroethane, acetone, dichlorodifluoromethane Associated samples were ND, except for T5-4 (Acetone), which is already flagged by lab. No additional action required. LCS recoveries were below the acceptance limits for 2-chloroethyl vinyl ether, carbon disulfide, methyl tert butyl ether Data for this compound is qualified with an "R". See Data Qualification table below.
4	Sample collected from T5-4 contained significant headspace. Reported results are considered minimum values and qualified below.
5	MS/MSD failures were present. All were evaluated. The laboratory case narrative provides detailed explanations of the compounds failing. Analyses for LCS met criteria for failed compounds, except where noted and addressed in the LCS discussion; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
6	1,1 DCE is out of range for A10-2-R-wWT - Lab has flagged with "E" - No additional action required 1,1,1-TCA and PCE out of range for A10-2-R-2 - Lab has provided an "E" flag. - No additional action required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accurace of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
T5-4	Acetone, 1,1-DCE	J	headspace in VOA vial
T5-4	All VOCs with detections	a	headspace in VOA vial
T3-3-CLAY	2-chloroethyl vinyl ether	R	No LCS Recovery
T5-4-20	2-chloroethyl vinyl ether	R	No LCS Recovery
T5-4-CLAY	2-chloroethyl vinyl ether	R	No LCS Recovery
S11-3R-10	2-chloroethyl vinyl ether	R	No LCS Recovery
A10-2-R-WT	Carbon Disulfide	R	Low LCS Recovery
A10-2-R-15	methyl tert butyl ether	R	Low LCS Recovery
A10-2-R-5	methyl tert butyl ether	R	Low LCS Recovery
A10-2-R-2	methyl tert butyl ether	R	Low LCS Recovery
A10-2-R-0.5	methyl tert butyl ether	R	Low LCS Recovery

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: FA8967X

Analysis Method: RADIUM 226 AND 228 **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: AQUEOUS: NONE

SOIL: A12-5-5, A12-2-2, S22-1-15, S22-1-2, A12-5-0.5, S22-2-5, S22-2-2, S22-1-5, S22-1-INT,S22-2-INT, A12-6-2,A12-2-0.5 A12-2-5, S22-1-10, S22-2-10, S22-2-0.5

Split Samples

Quality Control Samples Associated With Batch **Field:** NONE

Lab: METHOD BLANKS, LAB SPIKES, MSMSD, SURROGATES

Reviewed by & Date: Kate Fuller 12-2-13

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☑ OK ☐ No* ☐ Not provided Comment#:		
	All samples on COC reported	☐ OK ☑ No* Comment#:	1	
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and preservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☑ OK ☐ No* Comment#:		
Surrogate Recovery Summary	Method surrogates used	☐ OK ☐ No* ☑ Not provided		☐ Flags Applied
	Recovery Limits:	☐ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: REVIEWED AND INCLUDES DETAILED SUMMARIES OF HOLD TIMES, QC ISSUES, AND CONFORMANCE.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Samples were collected in the field for future analysis if required and held at the lab.
	Analysis of any held samples are reported separately.
2	LCS recoveries were below the acceptance limits for several Radium 226 and 228 analyses.
	Associated sample results are lab qualified with a "U" and identified as samples with a CalcVal<MDL.
	Data should be qualified as stated below in the Data Qualification Table

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
DUP-122	Radium-228	U	Sample with a CalcVal<MDL
A12-2-0.5	Radium-226	U	Sample with a CalcVal<MDL
DUP-121	Radium-228	U	Sample with a CalcVal<MDL
A12-2-5	Radium-226	U	Sample with a CalcVal<MDL
A12-2-5	Radium-228	U	Sample with a CalcVal<MDL
A22-2-0.5	Radium-228	U	Sample with a CalcVal<MDL
A12-5-5	Radium-228	U	Sample with a CalcVal<MDL

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: 60159805

ysis Method: 8260B **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: S20-3-10, S20-3-15, S20-3-20, S20-2-10, S20,2-15, S20-2-20, S18-10-5, A12-9-5, A12-9-10, A12-9-15, A12-9-20 A12-8-5, A12-8-10, A12-8-15, A12-8-20, A12-10-5, A12-10-10, A12-10-15, A12-10-20, S18-12-15, A12-7-5, A12-7-10, A12-7-15, A12-7-20

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES

Reviewed by & Date: Lisa Hennessy 01-10-2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☐ OK ☑ No* ☐ Not provided Comment#:	1	
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☐ OK ☑ No* Comment#:	2	☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☐ OK ☐ No* ☑ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☐ No* Comment#:		
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	4	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary No issues other than temp noted.

Case Narrative Comments: Cover letter provided with a brief statement of conformance to lab QA/QC manual.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Cover letter provided with a brief statement of conformance to lab QA/QC manual.
2	Samples were received outside required temeperature; however, samples were hand delivered same day as sampled and arrived at the laboratory within hours of collection and ice was present in the cooler. The samples were analyzed immediately. No additional action required.
3	There were seven compounds that failed the LCS criteria on the high side. In each instance the associated samples were reported as non-detect. Laboratory has flagged all instances. No additional action needed.
4	All diluted samples have elevated reporting limits to reflect the dilution. No additional action required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	--	--	--

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: 60159929

Analysis Method: 8260B and 6010 **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: A10-9-5, A10-7-2, A10-7-5, A10-7-10, A10-7-15, A10-7-20, A10-6-2, A10-6-5, A10-6-10, A10-6-15, A10-6-20, S25-3-5, S25-3-10, S25-3-15, S25-3-20, S11-6-5, S11-5-15, BC-5-5, BC-5-10, BC-5-15, BC-5-20

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD

Reviewed by & Date: Lisa Hennessy 01-10-2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☐ OK ☑ No* ☐ Not provided Comment#:	1	
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☑ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☐ No ☑ Yes* Comment#:	4	
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: Cover letter provided with a brief statement of conformance to lab QA/QC manual.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Cover letter provided with a brief statement of conformance to lab QA/QC manual.
2	There were 4 compounds that failed the LCS criteria on the high side. In three instances the associated samples were reported as non-detect and no additional action needed. Data qualifiers are needed for the positive detections of sec-butylbenzene as they may be biased high. See Table below.
3	MS/MSD failures were present. All were evaluated. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.
4	Only one sample(S11-5-15) required dilution for one parmeter (PCE) and the detection limit has been elevated to reflect the dilution. No additional action required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
BC-5-15	sec-Butylbenzene	J	High recovery of compound in the laboratory control spike.

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: 60160065

Analysis Method: 8260B **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: SEBJ-6-15, SEBJ-5-15, DC-29-15, DC-30-10, DC-31-15, S14-7-0.5

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES

Reviewed by & Date: Lisa Hennessy 01-10-2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☐ OK ☑ No* ☐ Not provided Comment#:	1	
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	2	
MS/MSD	Matrix Spikes Provided	☐ OK ☐ No* ☑ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☐ No* Comment#:		
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: Cover letter provided with a brief statement of conformance to lab QA/QC manual.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Cover letter provided with a brief statement of conformance to lab QA/QC manual.
2	There were five compounds that failed the LCS criteria on the high side. In each instance the associated samples were reported as non-detect. Laboratory has flagged all instances. No additional action needed.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	--	--	--

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: 60160696

ysis Method: 8260B **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: SEBJ-8-10, A10-16-5, SEBJ-11-10

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD

Reviewed by & Date: Lisa Hennessy 01-10-2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☐ OK ☑ No* ☐ Not provided Comment#:	1	
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☐ OK ☑ No* Comment#:	2	☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:	3	
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary No issues other than temp noted.

Case Narrative Comments: Cover letter provided with a brief statement of conformance to lab QA/QC manual.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Cover letter provided with a brief statement of conformance to lab QA/QC manual.
2	Samples were received outside required temeperature; however, samples were hand delivered same day as sampled and arrived at the laboratory within hours of collection and ice was present in the cooler. The samples were analyzed immediately. No additional action required.
3	MS/MSD failures were present. All were evaluated. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	--	--	--

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: 60160815

ysis Method: 8260B **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: Soil: S11-18-15, DC-33-10, S14-13-15

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES

Reviewed by & Date: Lisa Hennessy 01-10-2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☐ OK ☑ No* ☐ Not provided Comment#:	1	
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☐ OK ☑ No* Comment#:	2	☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☐ OK ☑ No* Comment#:	3	
MS/MSD	Matrix Spikes Provided	☐ OK ☑ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:		
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary No issues other than temp noted.

Case Narrative Comments: Cover letter provided with a brief statement of conformance to lab QA/QC manual.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Cover letter provided with a brief statement of conformance to lab QA/QC manual.
2	Samples were received outside required temeperature; however, samples were hand delivered same day as sampled and arrived at the laboratory within hours of collection and ice was present in the cooler. The samples were analyzed immediately. No additional action required.
3	LCS%rec is high for carbon disulfide, chloromethane, and dichlorodifluoromethane. However, these three compounds were all reported as non-detect eliminating the high bias. No additional action required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	--	--	--

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: 60159167

ysis Method: 8260B **Matrix:** ☑ Water ☑ Soil ☐ Other

Sample Locations in Batch: Soil: S14-9-5, S14-10-10

Aqueous: JC-1

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES

Reviewed by & Date: Lisa Hennessy 01-10-2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☐ OK ☑ No* ☐ Not provided Comment#:	1	
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☐ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☐ OK ☑ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:		
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary NO ISSUES NOTED

Case Narrative Comments: Cover letter provided with a brief statement of conformance to lab QA/QC manual.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Cover letter provided with a brief statement of conformance to lab QA/QC manual.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	--	--	--

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: 60160751

Analysis Method: 8260B **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: Soil: S11-16-10, S11-15-15, S18-20-15, and S11-14-15

Aqueous: None

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES

Reviewed by & Date: Lisa Hennessy 01-10-2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☐ OK ☑ No* ☐ Not provided Comment#:	1	
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☐ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☐ OK ☑ No* Comment#:	2	☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☐ OK ☑ No* ☐ None*		☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:		
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary No issues other than temp noted.

Case Narrative Comments: Cover letter provided with a brief statement of conformance to lab QA/QC manual.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Cover letter provided with a brief statement of conformance to lab QA/QC manual.
2	Samples were received outside required temeperature; however, samples were hand delivered same day as sampled and arrived at the laboratory within hours of collection and ice was present in the cooler. The samples were analyzed immediately. No additional action required.
3	LCS%rec is high for carbon disulfide and dichlorodifluoromethane. However, these two compounds were all reported as non-detect eliminating the high bias. No additional action required.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	--	--	--

Project Name & Task: Clean Harbors-Wichita Phase IV RFI

Sample Delivery Group: 60162858

ysis Method: 8260B **Matrix:** ☐ Water ☑ Soil ☐ Other

Sample Locations in Batch: Soil: S14-13-5, S14-13-10, S14-13-15, S14-13-20, S14-14-5, S14-14-10, S14-14-15, S14-14-20, S14-15-5, S14-15-10 S14-15-15, S14-15-20, S14-16-5, S14-16-10, S14-16-15, S14-16-20, S14-17-5, S14-17-10, S14-17-15, S14-17-20, NBJ-S-5, NBJ-2-10, NBJ-2-15 NBJ-2-20, NBJ-3-5, NBJ-3-10, NBJ-3-15, NBJ-3-20, NBJ-4-5, NBJ-4-10, NBJ-4-15, NBJ-4-20

Split Samples NONE

Quality Control Samples Associated With Batch **Field:** TRIP BLANK

Lab: METHOD BLANKS, LAB SPIKES, MS/MSD

Reviewed by & Date: Lisa Hennessy 01-10-2013

Quality Control	Requirements	Check (* See QC Comments)		Flags Applied (see comments)
Data Pkg Complete (DP)	All required deliverables in pkg. (Case Narrative/Conformance Summary, Results, COC, QC Summaries)	☐ OK ☑ No* ☐ Not provided Comment#:	1	
	All samples on COC reported	☑ OK ☐ No* Comment#:		
Holding Times (HT)	Water	☑ OK ☐ No* ☑ N/A Comment#:		☐ Flags Applied
	Soil	☑ OK ☐ No* ☐ N/A		☐ Flags Applied
Containers and Preservations	Containers and perservation compliant	☑ OK ☐ No* Comment#:		☐ Flags Applied
Blanks (MB,TB,EB, FB/AB)	Detects (> MDL or RL)			
	Method Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Trip Blank	☑ No ☐ Yes* ☐ N/A Comment#:		
	Equipment Blank	☐ No ☐ Yes* ☑ N/A Comment#:		
(Blank Spike S)	LCS Data Provided	☑ OK ☐ No*		☐ Flags Applied
	Acceptance criteria met	☑ OK ☐ No* Comment#:		
MS/MSD	Matrix Spikes Provided	☑ OK ☐ No* ☐ None*	2	☐ Flags Applied
	Acceptance Limits:	☐ OK ☑ No* Comment#:		
Surrogate Recovery Summary	Method surrogates used	☑ OK ☐ No* ☐ Not provided		☐ Flags Applied
	Recovery Limits:	☑ OK ☐ No* Comment#:		
Sample Evaluation	All hits within cal. Range	☑ OK ☐ No* Comment#:		☐ Flags Applied
	Sample Dilutions	☑ No ☐ Yes* Comment#:		
Field Duplicate (FD)	Precision of native vs field duplicate(s)	☐ OK ☐ No* ☑ N/A See Analysis Below		☐ Flags Applied

Sample Receipt Summary No issues other than temp noted.

Case Narrative Comments: Cover letter provided with a brief statement of conformance to lab QA/QC manual.

Review of field notes (note any deviations from work plan or other anomalies that may bias data): NONE NOTED

Field Duplicate Analyis: NOT APPLICABLE

QC Item	Comments
1	Cover letter provided with a brief statement of conformance to lab QA/QC manual.
2	MS/MSD failures were present. All were evaluated. Analyses for LCS met criteria for failed compounds, except where otherwise noted; therefore, acceptable precision and accuracy are demonstrated by LCS QC.

Overall Data Assessment for Group:

The results presented in this data package have been validated in accordance with validation criteria presented in the EPA Functional Guidelines for Organic and Inorganic Data Review (OSWER 9240.1-05A-P) dated October 1999. Data is found to be representative and quantitative meeting the precision and accuracy of the data quality objectives with the exceptions noted below, if any.

Data Qualifications

Sample ID	Analytes	Qualifier	Reason for Qualification
None	--	--	--

APPENDIX E

SITE RADIOLOGICAL SCOPING SURVEY, USA ENVIRONMENT, L.P.

SITE RADIOLOGICAL SCOPING SURVEY

September 2013
Clean Harbors (Reid Supply) Facility
Wichita, KS

USA Environment LP
10234 Lucore St
Houston, TX 77017

Project ID # 2950-NR-H026

TABLE OF CONTENTS

APPENDICES

1. Introduction

USA Environment has been retained by Clean Harbors to perform a radiological screening survey of the Wichita, KS facility in order to confirm and supplement data presented in the Kansas Department of Health and Environment report from a 2010 survey of the same property.[1] The site is located at 2549 North New York Avenue in the north- central portion of Wichita, Kansas. The site is approximately 6 acres and includes open field areas, paved/asphalted areas as well as several structures. Adjacent properties include the Missouri Pacific Railroad (MoPac RR) and the Union Pacific Railroad (UPRR) facilities to the north and west, and the former El Paso Corporation refinery to the south (previously decommissioned and demolished by USA Environment LP). The site is additionally bordered by New York Avenue, East Fork of Chisholm Creek, Hwy I-135 and a residential area are to the east.

The site was formerly owned and operated by Reid Supply Company from the mid-1970's to early 1986. Operations conducted during this time frame included hazardous waste operations with spent solvents, spent electroplating baths, and other hazardous sludge.

Although ownership has changed many times since 1986, the property has always been involved with chemical processing and waste management activities. Solvents that had been used with radioluminescent (radium) paints are known to have been one of the chemicals processed at this facility. Exact quantities or concentrations of radium in these solvents are not known. Likewise, data concerning the specific handling/processing protocols for these radium-impacted solvents is not known. The Kansas Department of Health and environment conducted a screening surface survey of the site in October of 2009. Several portions of the site were determined by KDHE to be impacted by radium based on this survey. One section was found to have elevated gamma radiation levels of 35 μR/hr, approximately three times the assumed background of 10 μR/hr. Soil sampling or gamma spectroscopy was not conducted at this time. Based on this screening survey, KDHE concluded that a specific radioactive materials license is required for any activities being conducted on this property.

USA Environment was retained by Clean Harbors in order to provide a specific radioactive materials license and radiologic safety oversight for activities to be conducted during characterization and remediation of the facility. In order to provide a work plan for the radiologic oversight, USA Environment requested additional data concerning radiological characterization of the assumed radium-impacted portions of the site. Since more detailed data was not available, USA Environment developed a workplan to gather the required data. This workplan included detailed walkover gamma combined with GPS logging data survey of the assumed impacted locations and biased soil sampling based on past and present survey results. USA Environment mobilized to the site twice to conduct walkover surveys and soil sampling. The surveys and sampling are discussed further in the sections below.

2. Radiological Survey

USA Environment first mobilized to the site on Thursday August 15th, 2013 in order to conduct the walkover survey and soil sampling. Due to heavy rains over the previous two weeks, the site conditions were less than ideal for surveying due to saturated ground and standing water in several locations. However, the areas designated as radium-impacted by the previous KDHE survey were accessible and the activities proceeded as planned. During the downloading of the files from the data-logger, errors were encountered that resulted in corrupt, unreadable data. Despite several attempts to recover the data, they were deemed irrecoverable and a second survey scheduled. USA Environment remobilized to the site on September 9th, 2013 in order to repeat the walkover survey and procure additional soil samples.

The walkover surveys utilized gamma-ray, 3"x3" NaI scintillation detectors coupled to Ludlum 2241-3 survey meters, a sub- meter global positioning systems (GPS), and data loggers to automatically record the radiation levels and their locations as the field operator performs the walkover. Figure 1 displays the aerial view of the site with the individual survey units outlined. Based on the initial KDHE report, units 1, 2, 3,12, and 13 were assumed to be impacted, units 4, 5, 6, 14, 15, 16, and 17 potentially impacted, and the remainder of the units having a low probability of being impacted.

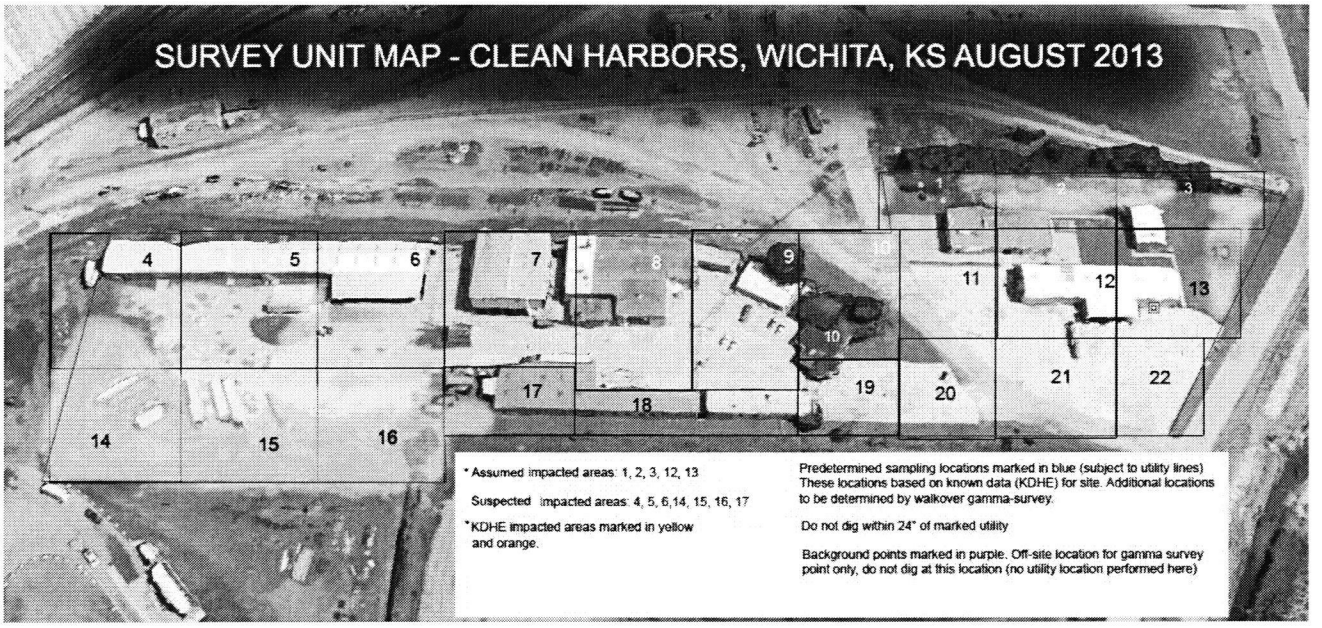


Figure 1. Clean harbors Facility divided into 22 survey units with the KDHE assumed contaminated zones highlighted.

The survey over the assumed-impacted areas was conducted with the detectors mounted 15 cm (6") above the ground, with the technician walking traverses across the survey units with a 1m traverse spacing. This approach provides the field survey operator with continuous measures (once per second) of the distance to the right or left of a target traverse line, guiding the course corrections to follow the target line within approximately 0.5 m. Together, the successive traverses form a serpentine pattern that provides approximately one radiation measurement in every 1 m^2 area based on a traverse spacing of 1 meter (m) and a walking velocity of 0.5 m/s.

Areas of lower probability were walked with a wider traverse spacing of 3 m. These areas were suspected of having diffuse contamination spread uniformly across the areas as depicted by the previous KDHE survey. Paved surfaces such as parking lots were not previously identified as impacted and were assumed to be of very low probability of being contaminated. These areas received only individual, sparsely-distributed survey points.

2.1 Survey Sensitivities, Detection Limits and Field Instrumentation

The following radiological field survey instruments will be used with the detection sensitivities having been determined following the guidance of NUREG-1507 using nominal literature values for background, response, and site conditions for the Ludlum detectors.

All walkover surveys were performed using 3" x 3" sodium iodide (Nal) scintillation detectors (Model 44-20, Ludlum Measurements Inc., Sweetwater, TX) coupled serially to count rate meters (Model 2241-3, Ludlum). The survey meters were coupled in turn to sub-meter global positioning systems (GPS) (Trimble Pro XRS) to automatically record detector positions every second. The data logger used to store the detector positions recorded the gamma radiation exposure rates (cpm) every two seconds. The logged data from the survey meters and GPS systems was downloaded daily to field computers for transfer and analysis.

Since all the detectors were calibrated to cesium-137 efficiency sources, a direct reading of μR/hr cannot be determined due to the variance in energy response of NaI to gamma radiation. Instead, direct measurements were made in units of counts per minute. A Ludlum model 19 survey meter , which has a uniform energy response across the energies associated with radium-226 and efficiency sources was then used to conduct gamma exposure rate surveys at the sampling locations. The readings in μR/hr were then correlated to the direct cpm measurements taken at the identical locations using the Ludlum 4421-3 survey meter with the 3"x3" NaI detector. A table containing the specific measurements made using each detector for each of the sampling locations is contained in Appendix III. Figure 2 below graphically displays this data and the correlation for converting cpm measurements to μR/hr.

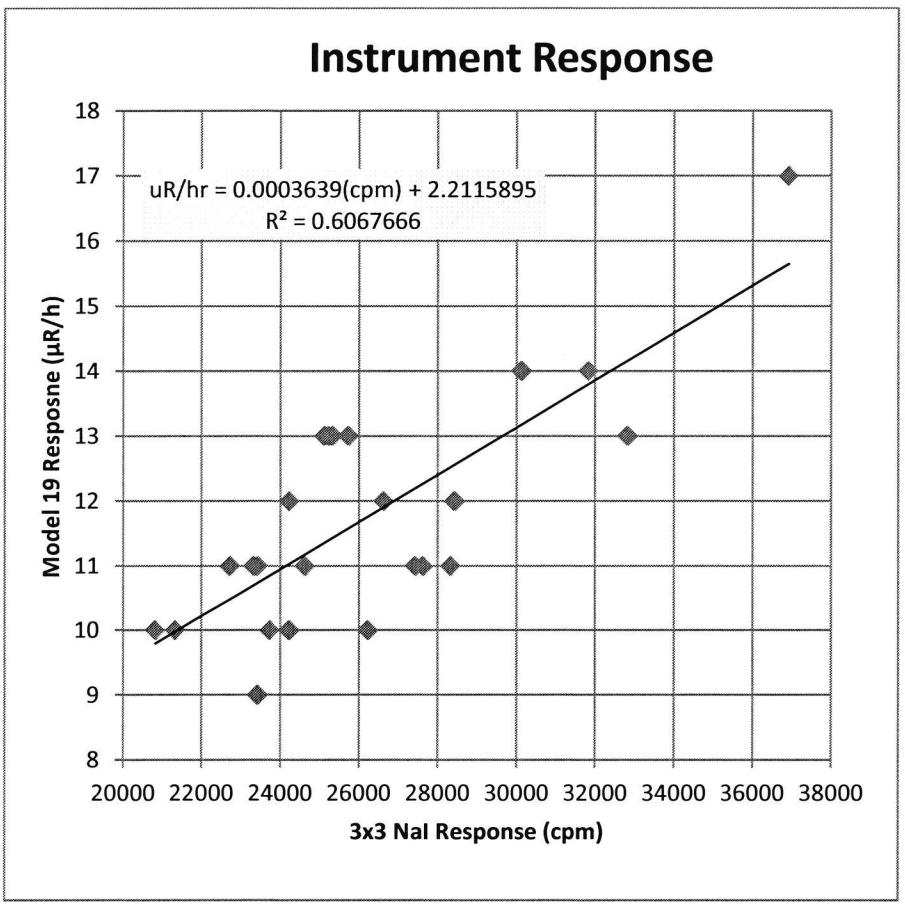


Figure 2. NaI detector response correlated to the Model 19 Response in order to determine μR/hr gamma exposure measurements from cpm data.

All instrumentation were calibrated (within the past 12 months). Daily field performance checks (i.e. background and source check) were conducted in accordance with individual instrument use procedures. These performance checks were performed prior to daily field activities and at any time the instrument response appears questionable. Calibration records for the detectors used are included as an appendix to this report.

2.2 Soil Sampling

Several locations were preselected for sampling based on the KDHE survey data. Additional locations were to have been selected based on an action level of 20 μR/hr. In the absence of any areas meeting the action level, sampling locations were to be selected based on the available data and the judgment of the field technicians in order to obtain representative data for the site. A total of 15 discrete locations were selected for sampling. During the initial mobilization to the site, 10 locations were sampled. These are depicted on Figure 3 as sampling locations 1a, 1b, 2, 5, 10a, 13, 14, 15, 17, 21 where the number represents the survey unit location the samples were collected from. The remaining 5 locations (4, 13b, 16, 18, 19) were sampled during the subsequent mobilization to the site along with an additional 10-point composite sample was collected across an area in Unit 1 based on analytical data obtained from the first mobilization's data set. This was overtop the location of the former drain line.

Each sampling location had one sample from the top 12" of soil depth and one sample from the second 12" of soil depth (12"-24" below surface) collected. All samples were analyzed via gamma spectroscopy by Eberline Services in OakRidge, TN. In addition, the 10-point composite was collected evenly distributed across an area identified as previously containing a drain system. Soil data from the top 12" indicated levels slightly elevated from background concentrations. In order to compare concentrations to KDHE limits, samples were collected to a depth of 15 cm (6"). Analytical reports for all sampling locations are contained in Appendix II of this report.

3.0 Survey and Sampling Results

Figure 3 displays the survey results and sampling locations overlaid onto satellite imagery of the facility. (A larger version of this map is contained in Appendix I) Gamma survey results were unremarkable in that the action level of 20 μR/hr was never recorded in any area surveyed. The maximum gamma radiation levels were found to be only 16 μR/hr.

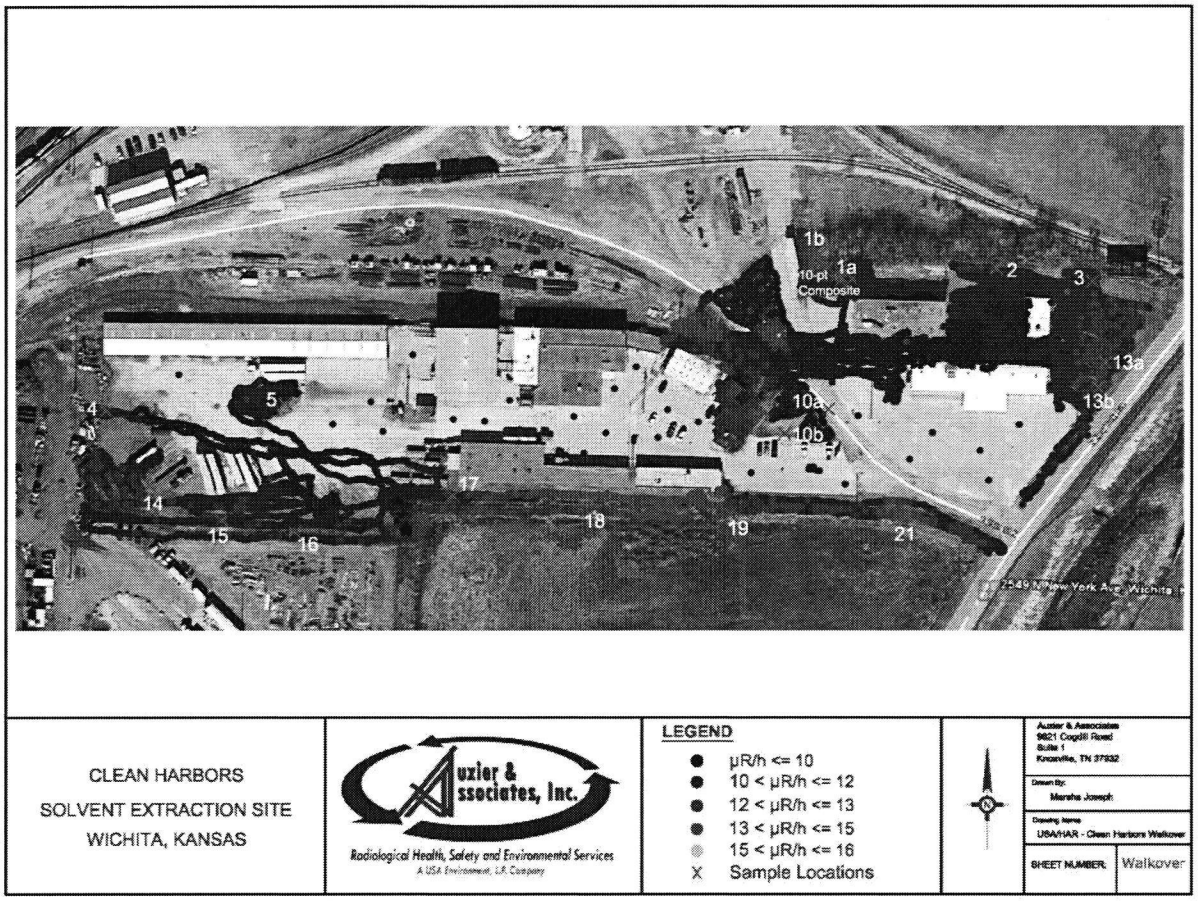


Figure 3. Survey results and sampling locations.

The minimum, median, maximum and average values of measurements recorded are listed in Table 1. The median value corresponded to on-site areas assumed to be non-impacted (Southeast corner near sample location 21and employee parking areas) and was determined to be 11 μR/hr. An off-site location over similar soil (shown in upper Northeast corner of map in Figure 1 on the public right-of-way alongside HWY I-135) was also found to be 11 μR/hr. This is consistent with typical background measurements across this region of the United States and was used as the background gamma exposure rate for this facility. Measurements displayed on the map were color-coded based on their values as compared to the average. Table 1 lists the statistical data for the distribution. Measurements greater than two standard deviations above the average were assumed to be "elevated" levels and are depicted in light green on the survey map. Although elevated above the determined background, elevated results did not indicate significant widespread contamination.

Table 1. Statistical data for survey results

	cpm	uR/hr	
min	11230	6	
median	22730	11	
65.0%	24350	11	
85.0%	26430	12	
90.0%	27230	12	
95.0%	28830	13	
97.5%	30230	13	
100.0%	35930	15	
Max	38530	16	
Average	22600	10.4	
StDev	3850		
Avg + σ	26449	11.8	
Avg + 2σ	30299	13.2	

Figure 4 shows the soil sampling data in comparison to EPA guidelines for allowable soil concentrations of radium-226. Table 2 lists the analytical data obtained from the soil samples collected. Sample results ranged from 0.62 to 3.60 pCi/g of radium -226. According to KDHE literature, typical background concentrations of radium-226 for this region ranges from 1-4 pCi/g.[2] Based on the median soil sample results, background concentrations of radium-226 were 1.1 pCi/g. Only two locations resulted in radium-226 concentrations statistically significant from background. The two were 2.5 and 3.6 pCi/g and occurred in the section that had previously contained the drain.

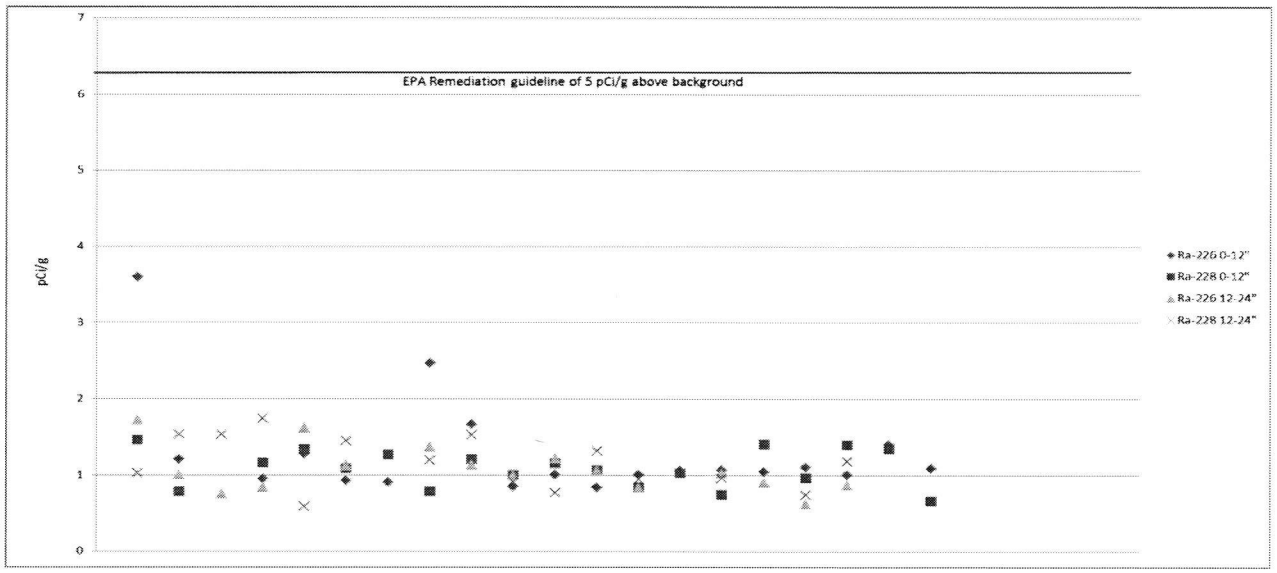


Figure 4. Graphical representation of sampling data relative to EPA guidelines.

Table 2. Soil sampling summary data. All values in pCi/g.

Depth		0-12"			12-24"	
	Ra-226 0-12"	Ra-228 0-12"	K-40	Ra-226 12-24"	Ra-228 12-24"	K-40
1A	3.6	1.46	17.2	1.73	1.03	18.2
1B dup	1.21	0.79	14	1.01	1.54	20.6
1B				0.76	1.53	20.8
2	0.955	1.17	17.4	0.85	1.74	18.4
3	1.28	1.34	18.5	1.62	0.59	7.14
4 dup	0.93	1.09	21.9	1.13	1.45	20.4
4	0.91	1.27	22.1			
5	2.47	0.79	18.6	1.37	1.2	19.8
10	1.67	1.21	23	1.14	1.53	20.7
13A	0.86	1.01	19.6	1	0.91	16.8
13B	1.01	1.16	18.3	1.22	0.77	15.9
14	0.84	1.07	21.8	1.07	1.32	19.4
15 dup	1.01	0.85	17.3	0.84	0.95	21.5
15	1.06	1.03	17.7			
16	1.07	0.75	21.8	1.03	0.96	17.3
17	1.05	1.41	22.1	0.91	1.41	20.2
18	1.11	0.97	17.3	0.62	0.74	23.5
19	1.01	1.4	22	0.87	1.18	22.5
21	1.4	1.35	29.7			
composite	1.09	0.67	13.4			
Avg	1.29	1.09	19.67	1.07	1.18	18.95
AVG BKG	1.09	1.09	19.67	1.00	1.18	18.95

4.0 Discussion

Survey results obtained by KDHE in 2010 could not be repeated for any of the assumed impacted areas of the facility. The conclusion drawn in 2010 was that the facility contained numerous locations where soil concentrations of radium-226 were assumed to be greater than 5 pCi/g above background based on surface gamma exposure rates of up to 35 μR/hr being measured in isolated locations with an assumed background exposure rate of 10 μR/hr. However, the current maximum gamma radiation level detected was only 16 μR/hr. Measurements a few μR/hr above background (12-14 μR/hr) were obtained in several locations across the site, however soil sampling results did not support an assumption of elevated levels of radium-226 based on these levels. The facility contains a wide variety of soil, gravel and rock types. Different soil types will contain different levels of naturally occurring radioactive material (NORM). Potassium-40 concentrations, a naturally occurring radionuclide with a high energy gamma, were determined to be in the high end of known background level ranges. As a gamma emitter, this could partially account for slight variances in gamma measurements across the site areas associated with compacted crushed rock containing higher levels of K-40 or other naturally occurring gamma emitting isotopes. Several of the locations, such as sample locations 18, 19 and 21 also contained K-40 concentrations above 20 pCi/g at either the first or second sampling depth. No historical evidence was provided to indicate potentially buried material that could result in subsurface concentrations of radium in the absence of surface deposits, other than the drain location in the Northeast corner of the facility.

The only location where the slightly elevated gamma measurements and soil concentrations indicated potential radium contamination from past processes was in the Northeastern portion of the site associated with hazardous drum storage and handling as well as a drain assembly that has been removed and back-filled at some point in the past. Soil sample results indicate that the elevated radium-226 concentrations were limited to the upper 12" of soil depth consistent with material that may have been spilled during drum handling processes. However, the elevated concentrations in these areas were less than 3 pCi/g above background levels in discrete locations and would not require remediation as a radiologically contaminated area under EPA guidelines. In addition, EPA and KDHE guidelines allow for averaging soil concentrations over $100m^2$ for the upper 15cm depth. The 10-point composite sample was representative of the upper 15 cm depth over approximately $10m^2$ covering the area associated with the historic drain location. Even averaged over this small of an area, the average concentration was found to be consistent with background levels. No data was collected that suggested soil concentrations exceeded 5 pCi/g above background levels down to a depth of 24". If radium contamination was the results of surface deposits, adverse weather over two years could account for the removal of surface contamination and the lower gamma radiation levels measured during this survey as compared to the measurements conducted in 2010. No soil sampling was conducted in 2010 for comparison to current data.

The location associated with the historic drain location was found to have bull rock with stabilizing sand beginning at approximately 6" depth and extending fully down to the 24" depth sampled during this scoping survey. Again, soil samples collected indicated any residual radium contamination was limited to the upper 12" of soil, however, the depth of the drain or soil conditions beyond 24" were not evaluated during this scoping survey. This area extends from the Northwest corner of the building in Unit 1 and approximately 40 feet to the Northwest to a shallow ditch adjacent to the vehicle right of way.

5.0 Conclusion

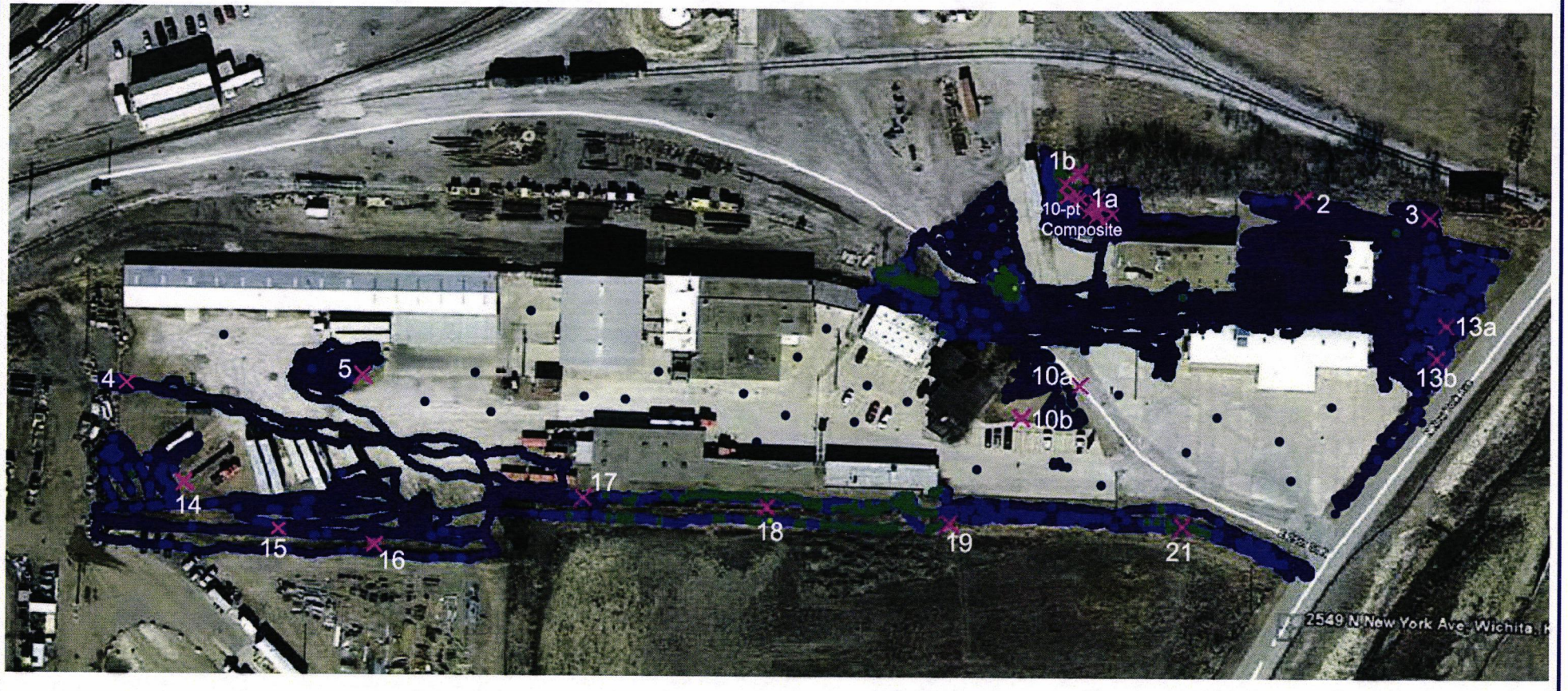
Assumptions for this site were that radium contaminated solvents leaked onto the surface across various locations on-site. In addition, there is suspicion that material may been discharged through a drainline previously located in the Northeast corner of the property. If years of contamination leaking onto the surface of the facility had caused site-wide contamination in excess of 5 pCi/g above background, radium deposits in the top 24" of soil should still be detectable via surface gamma scintillation detection and soil sampling. No information was found to indicate radium deposits would have been due to anything other than surface discharges with the exception of the drain location. Soil sampling combined with a walk-over gamma survey support the assumption that the majority of the facility has not been impacted by radium contamination. The portions of the site that have been linked to low levels of radium contamination do not indicate significant soil concentrations that would require remediation under any state or federal guidelines, based on the best available data.

References:

1. Unified Focused Assessment Report for the Safety Kleen (Wichita) Site (Reid Supply), Wichita, Sedgwick County, Kansas, KDHE I.D. No. # C208770722, Jan. 2010.

2. Naturally Ocurring Radioactive Material, KDHE Radiation Control Program, http://www.kdheks.gov/radiation/download/NORM_Info.pdf, June 2010

Appendix I - Survey Map with Gamma Data



CLEAN HARBORS

SOLVENT EXTRACTION SITE

WICHITA, KANSAS

Auxier & Associates, Inc.

Radiological Health, Safety and Environmental Services

A USA Environment, L.P. Company

LEGEND

- ● µR/h <= 10
- ● 10 < µR/h <= 12
- ● 12 < µR/h <= 13
- ● 13 < µR/h <= 15
- ● 15 < µR/h <= 16
- X Sample Locations

Auxier & Associates
9621 Cogdill Road
Suite 1
Knoxville, TN 37932

Drawn By: Marsha Joseph

Drawing Name: USA/HAR - Clean Harbors Walkover

SHEET NUMBER: Walkover

NaI detector set up combined with GPS unit. Detector probe is housed in the pvc housing. Plastic (1/8" pvc) does not present any significant attenuation to gamma radiation.

Appendix II - Analytical Data for Soil Sampling

USA ENVIRONMENT, LP

2950-NR-H026

STANDARD LEVEL IV
REPORT OF ANALYSIS

WORK ORDER #13-08078-OR

September 5, 2013

EBERLINE ANALYTICAL/OAK RIDGE LABORATORY
OAK RIDGE, TN

TABLE OF CONTENTS

Eberline Services – Oak Ridge Laboratory

LABORATORY DATA SUPPORT CHECKLIST

MP-001-3

Eberline Services Work Order # 13-08078

The checklist items listed below are to be initialed by appropriate staff upon completion/verification.

Date for Partial	Initials	Date	Initials	Checklist Items
		8/20/13	KC	Sample Log-In
		8/21/13	KBS	Data Compilation
		9-3-13	MAT	First Technical Data Review
		9/4/13	MSA	Second Technical Data Review
		9/4/13		Data Entry/Electronic Deliverable
		9/4/13		Case Narrative
		9/4/13	KBS	Electronic Deliverable Proof
		9/5/13	MSA	Samples Analyzed within Holding Time Yes? [X] No? [ ]
		9/5/13	MSA	QA/QC Review
		08/21/13	EyT	Client in Possession of Data Electronic or Hard Copy
				Invoiced by Laboratory

Technical/Clerical Corrections, Signatures Needed, Problems, Etc	Date/Initials

Date package approved by: Kathy B. Shanks for Laboratory Manager 9-5-13 Date

Copy No. _____

SECTION I

CHAIN OF CUSTODY

Chain of Custody Record

№ 5617

Eberline Services
601 Scarboro Road
Oak Ridge, TN 37830
(865) 481-0683 Phone • (865) 483-4621 Fax

EBERLINE SERVICES

Project Name: CLEAN HARBORS	Project Number: 2950-NR-H026
Send Report To: DON HALTER	Sampler (Print Name): TRENT NALEPA
Address: 10234 LUCORE	Sampler (Print Name): ADDISON VILLEREAL
HOUSTON, TX 77017	Shipment Method: FEDEX
DHALTER@USAENVIRO.COM	Airbill Number: 7964 9122 9554
Phone: 713-425-6937	Laboratory Receiving:
Fax:	

13-0807

REC'D AUG 20 2013

Purchase Order #: 2950-NR-H026

Analysis Requested: GAMMA-SPEC (REC) pCi/g

Field Sample ID	Sample Date	Sample Time	Sample Matrix	Number of Containers	Comments, Special Instructions, etc.	Lab Sample ID (to be completed by lab)
GRID# 1B 12-24 4	8-16-13	1000	SOIL	1	pCi/g	
GRID# 1A 0-12 5	8-16-13	1000	SOIL	1	pCi/g	
GRID# 13 12-24 6	8-16-13	1000	SOIL	1	pCi/g	
GRID# 13 0-12 7	8-16-13	1000	SOIL	1	pCi/g	
GRID# 1A 12-24 8	8-16-13	1000	SOIL	1	pCi/g	
GRID# 10 0-12 9	8-16-13	1000	SOIL	1	pCi/g	
GRID# 1B 0-12 10	8-16-13	1000	SOIL	1	pCi/g	
GRID# 17 0-12 11	8-16-13	1000	SOIL	1	pCi/g	
GRID# 10 12-24 12	8-16-13	1000	SOIL	1	pCi/g	
GRID# 2 0-12 13	8-16-13	1000	SOIL	1	pCi/g	
GRID# 2 12-24 14	8-16-13	1000	SOIL	1	pCi/g	
GRID# 21 0-12 15	8-16-13	1000	SOIL	1	pCi/g	
GRID# 15 12-24 16	8-16-13	1000	SOIL	1	pCi/g	
GRID# 5 12-24 17	8-16-13	1000	SOIL	1	pCi/g	
GRID# 17 12-24 18	8-16-13	1000	SOIL	1	pCi/g	
GRID# 5 0-12 19	8-16-13	1000	SOIL	1	pCi/g	
GRID# 14 0-12 20	8-16-13	1000	SOIL	1	pCi/g	

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Trent Nalepa	FedEx	8/19/13	1030
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
FedEx	Kristen Coulotte	8/20/13	900
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Sample Custodian Remarks (Completed By Laboratory):

QA/QC Level	Turnaround
Level I ☐	Routine ☐
Level II ☐	24 Hour ☐
Level III ☐	1 Week ☐
Other ☐	Other 5 DAY

Sample Receipt	
Total # Containers Received?	
COC Seals Present?	
COC Seals Intact?	
Received Containers Intact?	
Temperature?	

EBERLINE SERVICES Oak Ridge Laboratory	Internal Chain of Custody	Work Order #	13-08078
		Lab Deadline	8/23/2013
		Analysis	Gamma - Level 4
		Sample Matrix	Soil/Solid

Comments	Sample Fraction	HP 210 / 270 Detector Activity	Storage Location
Report: Co60, Cs137, Bi214, K40, Pb210, Ra223/226/228, Tl208, U235, U238 from Th & Pa lines & positives.	04	39	M1.3
	05	42	M1.3
	06	41	M1.3
	07	41	M1.3
	08	37	M1.3
	09	45	M1.3
	10	39	M1.3
	11	48	M1.3
	12	35	M1.3
	13	43	M1.3
	14	37	M1.3
	15	43	M1.3
	16	48	M1.3
	17	40	M1.3
	18	44	M1.3
	19	38	M1.3
	20	43	M1.3

	Location (circle one)					Initials	Date
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1000	Keny saej	8-20-13
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room 1100	Keny saej	8-20-13
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room	KB 8/20/13 1102	
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room	C 8/22	0558
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Received by	Sample Storage	Rough Prep	Prep	Separations	Count Room		
Relinquished by	Sample Storage	Rough Prep	Prep	Separations	Count Room		

SECTION II

SAMPLE ACKNOWLEDGEMENT

Client Name	Contract/PO	Project Type	Date Received	Required Turnaround Days	Eberline Services Work Order
USA Environment, LP	2950-NR-H026	Environmental	08/20/2013	5	13-08078
Project Name	**Client WO**	**Sample Disp**	**Lab Deadline**	**Internal Deadline**	**Client Deadline**
2950-NR-H026	CLEAN HARBORS	H	08/23/2013	08/23/2013	08/23/2013

Internal ID	Client ID	Sample Date	Matrix	Storage	Gamma																						TH
01	LCS	08/20/13	SO	M1.3	X																						1
02	BLANK	08/20/13	SO	M1.3	X																						1
03	DUP	08/20/13	SO	M1.3	X																						1
04	GRID# 1B 12-24	08/16/13 10:00	SO	M1.3	X																						1
05	GRID# 1A 0-12	08/16/13 10:00	SO	M1.3	X																						1
06	GRID# 13 12-24	08/16/13 10:00	SO	M1.3	X																						1
07	GRID# 13 0-12	08/16/13 10:00	SO	M1.3	X																						1
08	GRID# 1A 12-24	08/16/13 10:00	SO	M1.3	X																						1
09	GRID# 10 0-12	08/16/13 10:00	SO	M1.3	X																						1
10	GRID# 1B 0-12	08/16/13 10:00	SO	M1.3	X																						1
11	GRID# 17 0-12	08/16/13 10:00	SO	M1.3	X																						1
12	GRID# 10 12-24	08/16/13 10:00	SO	M1.3	X																						1
13	GRID# 2 0-12	08/16/13 10:00	SO	M1.3	X																						1
14	GRID# 2 12-24	08/16/13 10:00	SO	M1.3	X																						1
15	GRID# 21 0-12	08/16/13 10:00	SO	M1.3	X																						1
16	GRID# 15 12-24	08/16/13 10:00	SO	M1.3	X																						1
17	GRID# 5 12-24	08/16/13 10:00	SO	M1.3	X																						1
18	GRID# 17 12-24	08/16/13 10:00	SO	M1.3	X																						1
19	GRID# 5 0-12	08/16/13 10:00	SO	M1.3	X																						1
20	GRID# 14 0-12	08/16/13 10:00	SO	M1.3	X																						1
	Totals Per Analysis (non QA samples)				17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

EBERLINE SERVICES

Sample Log In Report

Oak Ridge Laboratory
601 Scarboro Rd.
Oak Ridge, TN 37830

Voice: (865) 481-0683
Fax: (865) 483-4621

Invoice	
	Accounts Payable
	USA Environment, LP
	10234 Lucore
	Houston, TX 77017
Voice	713-425-6900
Fax	713-425-6917
Contact	Don Halter
Voice	713-425-6936
Fax	713-425-6917

Report Data	
	Don Halter
	USA Environment, LP
	10234 Lucore St
	Houston, TX 77017
Voice	713-425-6936
Fax	713-425-6917

Eberline Services – Oak Ridge Laboratory

SAMPLE RECEIPT CHECKLIST
MP-001-2

WORK ORDER # 13-08078

SAMPLE MATRIX/MATRICES: (CIRCLE ONE OR BOTH)

AQUEOUS (NON-AQUEOUS)

(CIRCLE EITHER YES, NO, OR N/A)

WERE SAMPLES:

Received in good condition?	(Y)	N	
If aqueous, properly preserved	Y	N	(N/A)

WERE CHAIN OF CUSTODY SEALS:

Present on outside of package?	(Y)	N
Unbroken on outside of package?	(Y)	N
Present on samples?	(Y)	N
Unbroken on samples?	(Y)	N
Was chain of custody present upon sample receipt?	(Y)	N

IF THE RESPONSE TO ANY OF THE ABOVE IS **NO**, A DISCREPANT SAMPLE RECEIPT REPORT (DSR) HAS BEEN ISSUED.

REMARKS: _____

SIGNATURE: Kristen Coulston DATE: 8/20/13

SECTION III

CASE NARRATIVE

EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
601 SCARBORO ROAD
OAK RIDGE, TENNESSEE 37830
PHONE (865) 481-0683
FAX (865) 483-4621

EBS-OR-36054

September 5, 2013

Don Halter
USA Environment, LP
10234 Lucore
Houston, TX 77017

CASE NARRATIVE
Work Order # 13-08078-OR

SAMPLE RECEIPT

This work order contains seventeen soil samples received 08/20/2013. All samples were analyzed by Gamma Spectroscopy.

CLIENT ID	LAB ID	CLIENT ID	LAB ID
GRID# 1B 12-24	13-08078-04	GRID# 2 0-12	13-08078-13
GRID# 1A 0-12	13-08078-05	GRID# 2 12-24	13-08078-14
GRID# 13 12-24	13-08078-06	GRID# 21 0-12	13-08078-15
GRID# 13 0-12	13-08078-07	GRID# 15 12-24	13-08078-16
GRID# 1A 12-24	13-08078-08	GRID# 5 12-24	13-08078-17
GRID# 10 0-12	13-08078-09	GRID# 17 12-24	13-08078-18
GRID# 1B 0-12	13-08078-10	GRID# 5 0-12	13-08078-19
GRID# 17 0-12	13-08078-11	GRID# 14 0-12	13-08078-20
GRID# 10 12-24	13-08078-12		

ANALYTICAL METHODS

Gamma Spectroscopy was performed using Method LANL ER-130 Modified.

ANALYTICAL RESULTS

Combined Standard Uncertainty is reported at 2-sigma value.

GAMMA SPECTROSCOPY

Samples for Gamma Spectroscopy analysis were prepared by transferring a known mass/aliquot of each prepared and homogenized sample to a standard geometry container. Samples were counted on a High Purity Germanium (HPGe) gamma ray detector.

ANALYTICAL RESULTS CONTINUED

GAMMA SPECTROSCOPY CONTINUED

Samples demonstrated acceptable results for all gamma-emitting radionuclides as reported. The method blank demonstrated acceptable results for all radionuclides as reported. Results for the Bismuth-214 replicate demonstrated a high relative percent difference; however, normalized difference is within acceptable limits for the analytical technique. Results for the Potassium-40 and Lead-214 replicate demonstrated an acceptable relative percent difference and normalized difference. Results for the Cobalt-60 and Cesium-137 laboratory control sample demonstrated an acceptable percent recovery.

CERTIFICATION OF ACCURACY

I certify that this data report is in compliance with the terms and conditions of the Purchase Order, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the cognizant project manager or his/her designee to be accurate as verified by the following signature.

Kathy B. Shaulis

for M.R. McDougall
Laboratory Manager

Date: 9/5/2013

Eberline Analytical wants and encourages your feedback regarding our performance providing radioanalytical services. Please visit http://www.eberlineservices.com/client.htm to provide us with feedback on our services.

SECTION IV

ANALYTICAL RESULTS SUMMARY

Eberline Analytical
Final Report of Analysis

Report To:
Don Halter
USA Environment, LP
10234 Lucore St
Houston, TX 77017

Work Order Details:
SDG: 13-08078
Purchase Order: 2950-NR-H026
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08078-01	LCS	KNOWN	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	1.32E+02	5.29E+00			pCi/g
13-08078-01	LCS	KNOWN	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	8.04E+01	3.22E+00			pCi/g
13-08078-01	LCS	SPIKE	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	1.34E+02	9.59E+00	1.18E+01	6.35E-01	pCi/g
13-08078-01	LCS	SPIKE	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	8.20E+01	6.27E+00	9.28E+00	4.99E-01	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	-1.61E-02	4.56E-02	4.56E-02	8.55E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	4.00E-03	3.26E-02	3.26E-02	6.29E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	1.45E-02	9.75E-03	9.78E-03	2.68E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	3.84E-03	1.44E-02	1.44E-02	2.89E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.60E-01	1.84E-01	1.84E-01	2.58E-01	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	6.98E-02	2.45E-01	2.45E-01	4.66E-01	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	9.83E-03	2.50E-02	2.50E-02	4.47E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	-2.46E-02	2.44E-02	2.44E-02	4.00E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-2.76E-01	2.37E-01	2.38E-01	3.75E-01	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	4.00E-03	3.26E-02	3.26E-02	6.29E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	-1.61E-02	4.56E-02	4.56E-02	8.55E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	-2.90E-03	3.29E-02	3.29E-02	6.65E-02	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	2.82E-02	8.69E-02	8.69E-02	1.52E-01	pCi/g
13-08078-02	MBL	BLANK	08/20/13 00:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	3.66E-01	4.22E-01	4.23E-01	3.56E-01	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

Eberline Analytical
Final Report of Analysis

Report To:
Don Halter
USA Environment, LP
10234 Lucore St
Houston, TX 77017

Work Order Details:
SDG: 13-08078
Purchase Order: 2950-NR-H026
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.54E+00	2.32E-01	2.45E-01	2.77E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	1.01E+00	1.74E-01	1.82E-01	1.29E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	-3.32E-02	4.59E-02	4.59E-02	7.53E-02	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	5.61E-02	5.34E-02	5.34E-02	8.36E-02	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.06E+01	2.73E+00	2.93E+00	5.47E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	1.35E+00	9.24E-01	9.27E-01	1.29E+00	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.43E+00	3.42E-01	3.50E-01	1.12E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.01E+00	2.22E-01	2.28E-01	1.26E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	4.53E-01	8.41E-01	8.42E-01	1.41E+00	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	1.01E+00	1.74E-01	1.82E-01	1.29E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.54E+00	2.32E-01	2.45E-01	2.77E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.24E+00	2.90E-01	2.97E-01	4.17E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	6.60E-02	3.11E-01	3.11E-01	5.14E-01	pCi/g
13-08078-03	DUP	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.53E+00	1.61E+00	1.61E+00	1.59E+00	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.53E+00	2.32E-01	2.45E-01	2.05E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	7.26E-01	1.80E-01	1.84E-01	2.86E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	1.96E-02	5.30E-02	5.30E-02	9.75E-02	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	2.32E-02	4.95E-02	4.95E-02	9.18E-02	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	2.08E+01	2.74E+00	2.94E+00	6.12E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	8.31E-01	8.39E-01	8.40E-01	1.48E+00	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.45E+00	3.47E-01	3.55E-01	1.18E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.04E+00	2.19E-01	2.25E-01	1.41E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	7.00E-02	8.32E-01	8.32E-01	1.37E+00	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	7.26E-01	1.80E-01	1.84E-01	2.86E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.53E+00	2.32E-01	2.45E-01	2.05E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.11E+00	2.65E-01	2.71E-01	4.12E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	1.24E-01	3.02E-01	3.02E-01	5.03E-01	pCi/g
13-08078-04	DO	GRID# 1B 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	6.79E-01	1.04E+00	1.04E+00	1.81E+00	pCi/g

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Final Report of Analysis

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Work Order Details:
SDG: 13-08078
Purchase Order: 2950-NR-H026
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.46E+00	3.12E-01	3.21E-01	3.55E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	3.60E+00	3.64E-01	4.08E-01	1.72E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	2.20E-02	6.67E-02	6.67E-02	1.24E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	2.54E-02	6.41E-02	6.41E-02	1.19E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.72E+01	2.53E+00	2.67E+00	1.03E+00	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	2.90E+00	1.57E+00	1.58E+00	2.17E+00	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.80E+00	3.22E-01	3.35E-01	1.76E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	3.71E+00	5.08E-01	5.42E-01	1.90E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	8.92E-01	1.22E+00	1.22E+00	1.93E+00	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	3.60E+00	3.64E-01	4.08E-01	1.72E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.46E+00	3.12E-01	3.21E-01	3.55E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.45E+00	2.53E-01	2.63E-01	2.89E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	1.04E+00	7.08E-01	7.10E-01	7.68E-01	pCi/g
13-08078-05	TRG	GRID# 1A 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	3.14E+00	2.37E+00	2.38E+00	2.52E+00	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	9.11E-01	2.43E-01	2.48E-01	2.84E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	9.98E-01	1.91E-01	1.97E-01	1.40E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	2.48E-03	5.72E-02	5.72E-02	1.03E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	3.25E-02	4.98E-02	4.98E-02	9.51E-02	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.68E+01	2.47E+00	2.62E+00	7.32E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	-2.28E-01	8.25E-01	8.25E-01	1.41E+00	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.16E+00	2.05E-01	2.14E-01	1.15E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	9.80E-01	1.81E-01	1.88E-01	1.50E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-2.93E-01	8.38E-01	8.38E-01	1.22E+00	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	9.98E-01	1.91E-01	1.97E-01	1.40E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	9.11E-01	2.43E-01	2.48E-01	2.84E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	7.44E-01	1.82E-01	1.86E-01	2.09E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	1.36E-01	2.91E-01	2.91E-01	4.92E-01	pCi/g
13-08078-06	TRG	GRID# 13 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.82E+00	1.52E+00	1.53E+00	1.42E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original

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Houston, TX 77017

Work Order Details:
SDG: 13-08078
Purchase Order: 2950-NR-H026
Analysis Category: ENVIRONMENTAL
Sample Matrix: SO

Lab ID	Sample Type	Client ID	Sample Date	Receipt Date	Analysis Date	Batch ID	Analyte	Method	Result	CU	CSU	MDA	Report Units
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.01E+00	2.54E-01	2.59E-01	2.40E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	8.62E-01	1.54E-01	1.60E-01	1.38E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	3.23E-02	5.55E-02	5.55E-02	1.02E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	4.32E-02	4.63E-02	4.63E-02	9.05E-02	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.96E+01	2.55E+00	2.74E+00	4.85E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	7.20E-01	9.20E-01	9.21E-01	1.66E+00	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.23E+00	2.17E-01	2.26E-01	1.17E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	9.71E-01	1.75E-01	1.81E-01	1.29E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-2.28E-01	1.07E+00	1.07E+00	1.38E+00	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	8.62E-01	1.54E-01	1.60E-01	1.38E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.01E+00	2.54E-01	2.59E-01	2.40E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	9.44E-01	1.82E-01	1.88E-01	2.05E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	2.51E-01	2.78E-01	2.78E-01	4.98E-01	pCi/g
13-08078-07	TRG	GRID# 13 0-12	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	1.71E+00	1.08E+00	1.09E+00	1.92E+00	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Actinium-228	LANL ER-130 Modified	1.03E+00	2.59E-01	2.64E-01	3.16E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Bismuth-214	LANL ER-130 Modified	1.73E+00	2.28E-01	2.45E-01	1.62E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cobalt-60	LANL ER-130 Modified	5.63E-02	6.15E-02	6.16E-02	1.18E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Cesium-137	LANL ER-130 Modified	6.16E-02	5.34E-02	5.35E-02	1.03E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Potassium-40	LANL ER-130 Modified	1.82E+01	2.53E+00	2.70E+00	7.37E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-210	LANL ER-130 Modified	1.18E+00	1.17E+00	1.18E+00	1.43E+00	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-212	LANL ER-130 Modified	1.31E+00	2.39E-01	2.48E-01	1.28E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Lead-214	LANL ER-130 Modified	1.75E+00	2.52E-01	2.67E-01	1.54E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-223	LANL ER-130 Modified	-1.22E+00	1.03E+00	1.03E+00	1.50E+00	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-226	LANL ER-130 Modified	1.73E+00	2.28E-01	2.45E-01	1.62E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Radium-228	LANL ER-130 Modified	1.03E+00	2.59E-01	2.64E-01	3.16E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Thallium-208	LANL ER-130 Modified	1.25E+00	2.19E-01	2.28E-01	2.09E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-235	LANL ER-130 Modified	3.15E-02	3.23E-01	3.23E-01	5.35E-01	pCi/g
13-08078-08	TRG	GRID# 1A 12-24	08/16/13 10:00	8/20/2013	8/20/2013	13-08078	Uranium-238	LANL ER-130 Modified	3.03E+00	1.70E+00	1.71E+00	1.63E+00	pCi/g

CU=Counting Uncertainty;CSU=Combined Standard Uncertainty (2-sigma);MDA=Minimal Detected Activity;LCS=Laboratory Control Sample; MBL=Blank; DUP=Duplicate; TRG=Normal Sample; DO=Duplicate Original